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Boston Public Works Department

4355.53
ANNUAL REPORT 1931-1932

OF THE

PUBLIC WORKS DEPARTMENT

FOR THE

YEAR 1931



CITY OF BOSTON
PRINTING DEPARTMENT
1932

COMPLIMENTS

JOSEPH A. ROURKE

Commissioner of Public Works

PLEASE EXCHANGE

ANNUAL REPORT
OF THE
PUBLIC WORKS DEPARTMENT
FOR THE
YEAR 1931



CITY OF BOSTON
PRINTING DEPARTMENT
1932

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ANNUAL REPORT
OF THE
PUBLIC WORKS DEPARTMENT
FOR THE
YEAR ENDING DECEMBER 31, 1931.

Boston, January 2, 1932.

HON. JAMES M. CURLEY,
Mayor of Boston.

DEAR SIR,— In compliance with the Revised Ordinances, the annual report of the operations and expenses of the Public Works Department for the year ending December 31, 1931, is respectfully submitted. The Public Works Department, created by Ordinances 1910, chapter 9, now chapter 27 of the Revised Ordinances of 1925, was formed by consolidating the Engineering, Water and Street Departments.

ORGANIZATION.

The department is composed of six main divisions, viz.:

Central Office.— The Central Office is composed of the accounting force of the entire department under the charge of the chief clerk.

Bridge and Ferry Division.— This division, under a division engineer, has the charge and care of all bridges used as highways which are in whole, or in part, under

the control of the city; and the care and management of the ferries owned by the city, including boats, slips, drops and buildings.

NOTE.—The Boston and Cambridge Division, so called, is not, strictly speaking, a division of the Public Works Department, as this work is in charge of a commission of two, one member appointed by the Mayor of Boston and the other by the Mayor of Cambridge, under the provisions of chapter 412 of the Acts of 1904; but because of the fact that the present Commissioner of Public Works is the Boston member of this commission and also because one half of the expense of the commission is defrayed by the Bridge Service, it is in this report treated as a division of this department.

Highway Division.—This division, under a division engineer, has charge of the construction, reconstruction and maintenance of roadways and sidewalks, and the care of lamps and lighting of streets, parks and alleys.

Sanitary Division.—This division, under a division engineer, has charge of the collection and removal of ashes, garbage and refuse, street cleaning and the oiling and flushing of streets.

Sewer Division.—This division, under a division engineer, has charge of the construction and maintenance of sewers, catch-basins and waterways.

Water Division.—This division, under a division engineer, has the care of water pipes, installation of meters, water service, laying and relaying of water mains and the high pressure fire service.

GENERAL.

Due to your Honor's intense interest in the unemployment situation, the Legislature was again petitioned for loans outside the debt limit to provide a construction program which would only slightly affect the tax rate.

For the reconstruction and repair of old streets the Legislature authorized \$500,000 outside the debt limit, to be spent within two years, and conditional upon \$500,000 being provided inside the debt limit. This

total, together with the balances from loans of the previous year authorized by the Legislature, enabled us to spend over \$3,000,000 on street construction this year, or approximately equal to that in 1930.

Contracts for the reconstruction of old streets include roadways and granolithic sidewalks. During the past two years we have adopted a new policy and awarded contracts exclusively for the replacement of large areas of defective and uneven brick sidewalks in the older parts of the city, thereby adding to the comfort and convenience of pedestrians in general and for the recreation of children in the residential neighborhoods. We think it only fair that the comfort and safety of pedestrians be given some consideration as compared with the enormous expenditures for traffic roadways for motor vehicles.

We have replaced every brick sidewalk in the North and West Ends with granolithic and incidentally saved a large amount in personal injury awards which, in 1929, amounted in these districts to \$40,000.

Through the efforts of your Honor, a reduction in electric street lighting rates was obtained, starting on September 1, 1931, amounting to approximately \$36,000 per year. In addition, without extra cost, the yearly lighting schedule has been increased from a total of 3,828 hours to 4,000 hours, which more nearly conforms to the schedules of other large cities in this latitude. The total savings due to reduction and increased schedule amount to approximately \$40,000 per year.

A new ten-year contract for the disposal of refuse and garbage was awarded, to start July 1, 1932. Proposals were received for alternative periods of five and ten years, and the latter award seemed more advantageous for the city.

A committee of engineers, designated by the commissioner, comprising Mr. A. J. Post, Division Engineer of Sanitary, L. Bayles Reilly of the Bridge and Ferry Division and John M. Shea of the Sewer Division, spent about six months investigating methods of disposal and

reached a conclusion that the reduction process at Spectacle Island for garbage and dumps for refuse were the best and cheapest for the city in the areas included in the contract.

Incineration must be given early consideration for the existing contract collection districts, particularly in West Roxbury and Brighton where the dumping facilities, within a reasonable haul, are disappearing.

In order to relieve flood conditions and permit building development, your Honor introduced a bill in the Legislature to provide \$1,000,000 outside the debt limit for extending the covered channels of Stony brook and its tributaries, which failed in being reported to the Legislature.

The Legislature, however, upon your Honor's petition, passed a bill in 1930 removing the limit of \$1,000,000 which could be borrowed inside the debt limit for sewerage works, which allowed us to spend \$1,200,000 this year for this purpose.

The dangerous condition of the fixed span of the Chelsea and Boston ends of the Chelsea North Bridge requires their immediate rebuilding. A bill was introduced by your Honor in 1931 for its rebuilding at a cost of approximately \$1,500,000, which went no further than the Committee on Rules of the Legislature.

The Peters administration installed two high pressure fire service pumping stations, one located at the Edison Company's Atlantic avenue plant operated electrically, and the other located at the Lincoln wharf station of the Boston Elevated Railway operated by steam. The agreements for both stations called for our getting out when the premises were needed by either corporation.

In March, due to the installation of a large new generating unit, the Boston Elevated Railway gave us notice to vacate their premises by June, which limit was later extended. The Edison Company were building the second section of the steam heating plant on Kneeland street, and we were fortunate in making

arrangements with that company for the transfer of the two steam pumps from the Elevated's station. Changes in the distribution system piping were made to accommodate the new location, and the new station was put into satisfactory commission in December.

Incidentally, the new station is a vast improvement over the old one in light, air and comfort for the operators.

We also learned from the Edison Company that the Atlantic avenue station will be abandoned and sold when the real estate market renders it advisable, and the city should seek a site for and build a modern six-pump electric pumping station, which will be the main standby of the system, and the two steam pumps, be kept in commission as a desirable auxiliary.

During the year the Boston & Albany Railroad bridges on Shawmut avenue and Albany street were rebuilt, and the Morton Street Bridge, over the New York, New Haven & Hartford Railroad tracks, was widened and rebuilt.

By arrangement with the Public Welfare Department, unemployed men receiving aid are assigned for work in this department, the number of days for each individual varying from one to three according to the weekly welfare allowance. This entailed more expense to this department for tools and for supervision. The direct gain was more day labor construction, a large saving in our personal service items by not replacing employees who died or were retired, and a reduction in the number of the customary temporary men.

Many of the welfare men were unable or unwilling to do a fair day's work, and the necessary mingling of them with our permanent force has had a tendency to reduce the output per man for the latter.

APPROPRIATIONS.

The money assigned for the maintenance work of the Public Works Department during the year 1931 was derived from the income of the city raised by

taxation. In December, 1930, the department estimates were submitted to the Mayor, in segregated form, who made such allowance for each item in the budget as he considered necessary and submitted them to the City Council. The total maintenance appropriations as passed by the City Council and approved by the Mayor are shown below.

Central Office	\$90,811 64
Bridge Service	483,398 43
Ferry Service	567,946 00
Lighting Service	1,040,478 00
Paving Service	1,653,282 45
Sanitary Service	3,154,113 16
Sewer Service	730,428 97
Water Service	1,737,189 18
Total	<u>\$9,457,647 83</u>

The expenditures under the several appropriations for the different services for the year 1931 were as follows:

DIVISIONS AND SERVICES.	Current Expenses.	Special Appropriations.	Total Expenditures.	Balance December 31, 1931.
Central Office.....	\$86,174 74		\$86,174 74	
Bridge Service.....	460,473 89	\$372,316 41	\$82,790 30	\$53,791 44
Ferry Service.....	560,744 34	137,770 37	698,514 71	60,013 20
Lighting Service.....	998,042 63		998,042 63	
Paving Service.....	1,496,534 55	3,200,029 95	4,696,564 50	324,916 17
Sanitary Service.....	3,040,994 93		3,040,994 93	
Sewer Service.....	654,430 64	1,635,705 22	2,290,135 86	*762,580 26
Water Service.....	1,679,667 56	267,372 83	1,947,040 39	47,389 90
Totals.....	\$8,977,063 28	\$5,613,194 78	\$14,590,258 06	\$1,248,690 97

* \$390,000 authorized, but not issued.

Yours respectfully,

J. A. ROURKE,
Commissioner of Public Works.

Cost of Maintenance of the Public Works Department Since 1922.

DIVISION AND SERVICES.	1922-23.	1923-24.	1924-25.	1925. (11 months.)	1926.	1927.	1928.	1929.	1930.	1931.
Central Office.....	\$100,457 23	\$84,717 60	\$86,511 11	\$81,432 27	\$89,009 05	\$88,214 06	\$87,166 21	\$89,413 93	\$89,937 12	\$86,174 74
Bridge Service.....	382,413 98	387,220 23	426,330 81	396,596 57	445,564 07	452,916 60	451,024 62	455,411 38	443,173 33	450,235 11
Boston and Cambridge Bridges.....	27,669 10	30,832 74	31,740 49	19,309 12	18,983 08	16,496 35	15,584 52	14,893 33	10,193 85	10,238 78
Ferry Service.....	497,091 74	498,684 78	523,527 46	472,240 69	516,316 65	552,328 81	558,335 56	554,744 35	548,567 65	560,744 34
Lighting Service.....	734,059 09	747,191 63	830,736 90	820,768 34	927,329 94	953,642 82	977,195 76	1,010,513 01	1,018,777 86	998,042 63
Paving Service.....	925,828 45	1,140,939 74	1,208,503 43	1,230,788 13	2,252,030 79	1,396,279 48	1,567,712 85	1,511,609 52	1,568,071 57	1,372,518 26
Removal of Snow.....	416,720 51	364,713 64	349,375 57	75,494 95	1,234,123 87	786,521 98	313,692 83	641,255 20	230,214 07	† 254,847 76
Sanitary Service.....	1,831,685 38	1,895,984 45	*2,073,913 32	1,877,228 67	2,050,603 65	2,089,907 75	2,087,116 27	2,177,678 60	2,207,807 64	2,128,811 57
Sewer Service.....	567,758 00	605,796 63	635,928 74	592,155 15	688,876 44	699,708 79	688,722 54	716,638 53	693,107 93	654,430 64
Street Cleaning Service.....	627,203 22	607,583 55	592,615 85	719,296 18	696,834 10	740,599 35	790,641 45	775,287 28	803,516 15	743,140 28
Street Watering and Oiling Service.....	122,865 88	108,842 33	79,476 90	53,420 88	51,458 88	49,375 06	41,700 49	46,366 66	59,753 80	38,211 61
Water Service.....	1,354,555 93	1,229,573 73	1,608,320 10	1,309,163 72	1,511,407 58	1,483,018 23	1,598,068 76	1,585,134 62	1,753,218 23	1,679,667 56
Totals.....	\$7,588,317 47	\$7,702,101 05	\$8,447,000 68	\$7,657,894 67	\$9,382,538 10	\$9,309,009 28	\$9,176,962 86	\$9,578,946 41	\$9,426,339 20	\$8,977,063 28

* Includes \$142,724.96 paid by Street Cleaning and Oiling Service.

† Does not include \$122,723.84 paid for snow removal from Special Appropriations.

REVENUES, 1931.

On Account of the Public Works Department, as Per Auditor's Statement.

Bridge Service:			
Maintenance of Chelsea bridges . . .	\$20,335	45	
Albany Street Bridge, alterations . . .	2,399	98	
Northern Avenue Bridge, repairs . . .	49	98	
Damage to bridges	270	68	
Sale of float	15	00	
Labor and material	71	28	
Charlestown Bridge, rents	1,865	00	
			\$25,006 37
Central Office:			
Sale of typewriter			5 00
Ferry Service:			
Tolls	\$88,026	76	
Rent	593	17	
Commission on telephones	104	13	
Cleaning telephone booths	48	00	
Free use of ferries, July 4	2	00	
			88,774 06
Lighting Service:			
Damage to posts			433 80
Paving Service:			
From assessments on abutters for cost of laying sidewalks in front of their premises, including material for the same . . .	\$43,265	31	
Permits	21,341	19	
Sale of material	3,326	11	
Labor and materials, chapter 27, section 9, Revised Ordinances, 1925	88	50	
Labor and materials furnished, etc. . . .	711	43	
Use of rollers	359	92	
Rent of signs	290	00	
Repairing signs	97	59	
Returned barrels, etc.	84	30	
Sale of tractor	20	00	
			69,584 35
Sanitary Service:			
Collection of commercial waste	\$46,268	85	
Refund on automobile registration . . .	1	50	
Sale of manure	2,651	15	
Labor and materials	107	64	
Sale of cart	20	00	
Oiling streets	117	32	
			49,166 46
Sewer Service:			
Pumping sewage, amount received from Commonwealth, . . .	\$11,998	37	
Entrance fees	3,735	14	
Labor and materials furnished, ...	1,184	69	
Refund automobile registration	1	50	
			\$16,919 70
Separate Systems of Drainage:			
Assessments	\$35	81	
Interest on ditto	8	16	
			43 97
Carried forward	\$16,963	67	\$232,970 04

<i>Brought forward</i>	\$16,963 67	\$232,970 04
Sewerage Works:		
Assessment, under chapter 450,		
Acts of 1899	\$65,054 50	
Interest on ditto	16,722 57	
Labor and materials, etc.	983 78	
Rent	260 00	
	83,020 85	
		99,984 52
Total		
		\$332,954 56

Water Service:

Water rates due:		
For the year 1931 and prior	\$4,769,011 83	
Service pipes for new water takers, extending,		
repairing, etc.	63,487 52	
Labor and materials	1,865 82	
Elevator and fire pipe connections	11,519 47	
Sale of materials	7,826 94	
Fees on overdue rates	13,670 17	
Shutting off and letting on water	656 00	
Interest on deposits	324 30	
Testing meters	345 88	
Relocating hydrants	973 38	
Damage to hydrants	546 74	
Board of horse	547 50	
Use of compressor	21 70	
Rent of meter	10 00	
Abandoning main pipe	131 91	
Total		
		4,870,939 16
Grand total		
		<u>\$5,203,893 72</u>

Area of Payments.

Area in Square Yards and Character of Pavements on Accepted Streets December 31, 1931.

DISTRICT.	Sheet Asphalt.	Asphalt Concrete.	Granite Block.	Wood Block.	Plank on Bridges.	Brick.	Concrete.	Macadam.	Gravel.	Not Graded.	Totals.
Year 1930 report.....	1,769,889	2,013,359	2,553,709	155,874	23,274	44,859	150,905	5,135,021	365,422	98,971	12,311,283
Per cent.....	14.38	16.35	20.74	1.27	0.19	0.36	1.23	41.71	2.97	0.80	100.00
January 1, 1932.											
City Proper.....	595,663	440,182	779,161	60,913	4,375	10,447	7,155	197,226	1,081		2,096,203
Charlestown.....	9,937	23,527	248,068	2,011	1,999		18,751	143,538			447,831
East Boston.....	76,690	65,657	134,767	187	1,422	771		422,540	4,614	865	707,513
South Boston.....	106,001	76,025	380,364	10,420	5,415	3,004	3,642	343,872	13,786	34,550	977,079
Roxbury.....	396,858	245,965	383,688	9,803	1,022	3,864	15,379	622,980	13,974	61	1,693,594
West Roxbury.....	291,934	473,286	173,367	429	1,447		33,651	1,010,616	63,401	61,619	2,109,750
Dorchester.....	389,974	508,569	256,076	22,716	2,053	6,327	32,384	1,427,373	74,402	3,200	2,724,074
Brighton.....	224,258	346,197	77,157	5,580	1,231		41,425	437,368	43,075	3,561	1,179,852
Hyde Park.....	5,632	92,812	12,572	1,692	747			324,996	187,557	7,919	633,927
Total.....	* 2,096,947	† 2,273,220	† 2,445,220	113,751	19,711	24,413	\$ 152,387	‡ 4,930,509	401,890	111,775	12,569,823
Per cent.....	16.68	18.09	19.45	0.91	0.16	0.19	1.21	39.22	3.20	0.89	100.00

NOTE.— In the above table the city is subdivided substantially on the boundary lines between the districts as they existed when annexed to Boston. Territory annexed from Brookline is included in city proper.

* Of this amount 2,096 square yards is Biturock, and 1,323 square yards is Kyrock, and 470 square yards is Unionite.

† Of this amount 693 square yards is asphalt block, and 153,794 square yards is asphalt concrete, and 1,858,123 square yards is bitulithic, and 939 square yards is Filbertine, and 5,825 square yards is Simasco, and 248,428 square yards is Topoka, and 2,259 square yards is Carey Elastite asphalt plank, and 1,674 square yards is Flinckote asphalt plank, and 1,465 square yards is Johns-Manville asphalt plank.

‡ Of this amount 520 square yards is cobble, and 1,733,835 square yards is granite block paving on concrete base.

§ Of this amount 924 square yards is Blome Granitoid concrete blocked pavement.

|| Of this amount 2,541,059 square yards is bituminous macadam.

33,945 square yards public alleys included in this table.

308,066 square yards public streets in charge of Park Department included in this table.

88,507 square yards public streets in charge of Commonwealth of Massachusetts included in this table.

In addition to this table there are 8,225 square yards of accepted footways.

Length of Pavements.

Length in Miles and Character of Pavements on Accepted Streets December 31, 1931.

District.	LENGTH IN MILES.										Totals.
	Sheet Asphalt.	Asphalt Concrete.	Granite Block.	Wood Block.	Plank on Bridges.	Brick.	Concrete.	Macadam.	Gravel.	Not Graded.	
Year 1930 report.....	94.74	97.95	96.59	6.99	1.07	2.01	8.77	313.09	23.94	2.40	647.55
Per cent.....	14.63	15.13	14.92	1.08	0.16	0.31	1.35	48.35	3.70	0.37	100.00
January 1, 1932.											
City Proper.....	30.20	19.26	32.17	2.82	0.15	0.45	0.92	11.04	0.07		97.08
Charlestown.....	0.69	1.41	10.51	0.08	0.07		0.78	9.89			23.43
East Boston.....	3.54	2.94	5.92	0.01	0.10	0.04		21.10	0.25	0.04	33.94
South Boston.....	6.18	3.39	15.29	0.61	0.21	0.12	0.12	18.57	0.58	1.30	46.37
Roxbury.....	22.19	11.94	14.70	0.38	0.04	0.19	0.72	41.69	1.12		92.97
West Roxbury.....	17.66	25.46	3.64	0.02	0.07		2.33	66.47	4.03	0.44	120.12
Dorchester.....	21.13	26.18	9.21	0.89	0.10	0.31	1.92	87.92	4.41	0.05	152.12
Brighton.....	9.80	16.89	0.66	0.22	0.08		2.22	25.12	2.92		57.91
Hyde Park.....	0.35	4.22	0.05	0.10	0.05			18.88	12.23	0.23	36.11
Total.....	* 111.74	† 111.69	‡ 92.15	5.13	0.87	1.15	§ 9.01	‖ 300.68	25.61	2.06	660.05
Per cent.....	16.93	16.92	13.96	0.78	0.13	0.17	1.37	45.55	3.88	0.31	100.00

NOTE.—In the above table the city is subdivided substantially on the boundary lines between the districts as they existed when annexed to Boston. Territory annexed from Brookline is included in city proper.

* Of this amount 0.16 mile is Biturock, and 0.68 mile is Kyrock, and 0.02 mile is Unionite.

† Of this amount 0.00 mile is asphalt block, and 7.37 miles is asphalt concrete, and 90.81 miles is bitulithic, and 0.06 mile is Fibertine, and 0.26 mile is Sinasco, and 12.93 miles is Topeka, and 0.12 mile is Carey Elastite asphalt plank, 0.03 mile is Flintkore asphalt plank, and 0.06 mile is Johns-Manville asphalt plank.

‡ Of this amount 0.04 mile is cobble, and 56.88 miles is granite block paving on concrete base.

§ Of this amount 0.06 mile is Blome Granitoid concrete blocked pavement.

‖ Of this amount 127.28 miles is bituminous macadam.

6.47 miles public alleys included in this table.

7.22 miles public streets in charge of Park Department included in this table.

3.09 miles public streets in charge of Commonwealth of Massachusetts included in this table.

In addition to this table there are 1.66 miles of accepted footways.

The records of the department show that there are now 3,063 persons eligible for employment in the several divisions and of that number 3,007 were upon the January, 1932, pay rolls.

Grade and Number of Employees.

TITLE.	SERVICES.								
	Central Office.	Paving.	Sewer.	Sanitary.	Street Cleaning.	Ferry.	Bridge.	Lighting.	Water.
Commissioner.....	1								
Division engineers.....		1	1	1			1		1
Engineers in charge.....		1							1
Chief clerk.....	1								
Clerks.....	39	25	9	2	2	1	2	1	50
Assistant engineers (civil).....		15	32	1			11		5
Draughtsmen.....		1	11				4		2
Instrumentmen.....		13	17				4		7
Rodmen.....		6	3				2		
Inspectors.....		36	46	49	32		3	1	27
Foremen.....		11	4	12	13		1		13
Subforemen.....		19					3		1
Address printers.....									3
Blacksmiths and assistants.....		7	3	18					5
Blueprinters.....	2		3						
Chauffeurs-teamsters.....		46	22	87	32		4		14
Carpenters and assistants.....		15	3	7		5	17		6
Chief inspectors.....		1							1
Cement testers and assistants.....	3								
Chemists and assistants.....		2							
Constables.....		1	1	7					15
Cashier.....						1			
Drawtenders and assistants.....							135		
Deckhands.....						25			
Engineers (steam).....		11	5			12			
Electricians.....			3			1	1		
Feeders.....		1		2					
Firemen.....		7	10			30			
<i>Carried forward.....</i>	46	219	173	186	79	75	188	2	151

1,119

Grade and Number of Employees.—Continued.

TITLE.	SERVICES.									
	Central Office.	Paving.	Sewer.	Sanitary.	Street Cleaning.	Ferry.	Bridge.	Lighting.	Water.	Total.
<i>Brought forward</i>	46	219	173	186	79	75	188	2	151	1,119
Gate-men			4			16				20
General foremen			1						1	2
Harnessmakers and assistants				5						5
Head chauffeurs		4			1					5
Horseshoers				8						8
Janitor						1				1
Matrons						7				7
Joiners						5				5
Laborers		280	104		126	11	5		160	686
Lamplighter						1				1
Machinist and assistants			4			9	1		20	34
Meter testers									8	8
Meter readers									30	30
Masons (stone and brick)			10	1					2	13
Medical inspectors		1		1	1					3
Oilers			16			15				31
Pipe fitters and repairers						2			16	18
Pavers		61							3	64
Plumbers									20	20
Painters		7	1	10		3	3			24
Captains						12				12
Quartermasters						12				12
Repairers		26	1		1				108	136
Roofer						1				1
Rammers		3								3
Rigger						1				1
Sealers									3	3
Sewer flushers			29							29
Supervisors and deputy		2		1		1	1			5
Stenographers		1	1							2
Stonecutters		10	2							12
Superintendents and deputy		2	1						2	5
<i>Carried forward</i>	46	616	347	212	208	172	198	2	524	2,325

Grade and Number of Employees.—Concluded.

TITLE.	SERVICES.									
	Central Office.	Paving.	Sewer.	Sanitary.	Street Cleaning.	Ferry.	Bridge.	Lighting.	Water.	Total.
<i>Brought forward</i>	46	616	347	212	208	172	198	2	524	2,325
Stockkeepers.....				1		1				2
Stableman.....		14		15	25		2		1	57
Teamsters and helpers.....		86		367	147				12	612
Telephone operators.....					1				1	2
Tollmen.....						13				13
Chief veterinarian.....		1								1
Watchmen.....				9	5		2		6	22
Wharfingers.....				4						4
Wharfmen.....				2						2
Wheelwrights and assistants.....				7						7
Yardmen.....		5	2	1	1				7	16
Totals.....	46	722	349	618	387	186	202	2	551	3,063

Number of Employees Actually Employed January 1, 1931, and January 1, 1932.

	Central Office.	Bridge.	Ferry.	Lighting.	Paving.	Sanitary.	Sewer.	Street Cleaning and Watering.	Water.	Total.
January 1, 1931.....	38	198	179	2	710	621	326	397	543	3,014
January 1, 1932.....	38	197	177	2	719	600	345	384	545	3,007

Total Eligible Force.

January 1, 1931.....	47	198	188	2	718	647	327	402	550	3,079
January 1, 1932.....	46	202	186	2	722	618	349	387	551	3,063

Appointments, Transfers, Resignations, Retirements, Deaths, etc., of Employees.

Died.	Retired.	Transferred to Other Depart- ments.	Transferred to Other Services.	Discharged.	Resigned.	January 1, 1931.	SERVICES, 1931-1932.	January 1, 1932.	Transferred from Other Services.	Transferred from Other Depart- ments.	Reinstated.	Appointed.
...	...	1	2	...	...	47	Central Office.....	*46	...	...	...	2
3	3	...	...	...	...	198	Bridge.....	202	1	1	...	8
2	2	...	1	...	...	188	Ferry.....	186	...	3	...	...
...	...	...	...	...	...	2	Lighting.....	2	...	...	...	...
18	30	1	2	1	1	718	Paving.....	722	5	2	1	49
12	15	2	34	...	4	647	Sanitary.....	618	24	7	1	6
8	10	1	28	...	1	402	Street Cleaning.....	387	28	2	1	2
6	11	1	...	...	...	327	Sewer.....	349	6	1	...	33
15	14	1	...	...	8	550	Water.....	551	3	1	1	34
64	85	7	67	1	14	3,079	Totals.....	3,063	67	17	4	134

* Includes eight Central Office employees who are paid on Water Service pay roll.

PART II.
APPENDICES.

APPENDIX A.

REPORT OF THE DIVISION ENGINEER OF
THE BRIDGE AND FERRY DIVISION.

BOSTON, January 2, 1932.

MR. J. A. ROURKE,

Commissioner of Public Works.

DEAR SIR,— I respectfully submit the following report of the income, expenditures and operation of the Bridge and Ferry Division for the year ending December 31, 1931. The expenditures of the division in the regular maintenance appropriations of the department were \$460,473.89. Under a number of special appropriations \$364,138.15 was expended, making the total expenditure for the year \$824,612.04. This does not include certain expenditures for construction work for other departments, which work was supervised by the engineers of this division.

The more important works undertaken during the past year in the Bridge Service were the rebuilding of the Albany Street and Shawmut Avenue Bridges, over the Boston & Albany Railroad; the widening and rebuilding of the Morton Street Bridge, over the New York, New Haven & Hartford Railroad; the construction of the Butler Street Footbridge, over the Dorchester Rapid Transit Lines of the Boston Elevated Railway and the building of the McCraw Street Footway under the tracks of the New York, New Haven & Hartford Railroad, at the Bellevue Station, West Roxbury.

As has been reported previously the pile approaches to the draw span of the Chelsea Bridge North, which are badly deteriorated and are gradually getting to be in a dangerous condition, should be rebuilt at once, preferably of granite, concrete and steel. As this will involve an expenditure of probably over \$1,000,000, it would be advisable to obtain a legislative act allowing the city to borrow outside of the debt limit for this work.

Gainsborough Street Footbridge, over the New York, New Haven & Hartford Railroad, is in poor condition and should be rebuilt.

Arlington Street Bridge, over the Boston & Albany Railroad, is to be widened and rebuilt in connection with the widening of Arlington street, from Arlington square to Stuart street. This work will be paid for out of a special appropriation for "Highways, Making Of."

The new steel ferryboat "General Sumner" was put in commission early this year.

Albany Street Bridge, Over Boston & Albany Railroad.

A contract was approved September 1, 1931, with Coleman Brothers, Incorporated, for rebuilding this bridge. A new steel and concrete superstructure was built on the existing pier and abutment, replacing the old superstructure which was in bad condition due to corrosion.

The new bridge is built of 20-inch deck beams encased in concrete. It has one roadway 34 feet 5 inches wide and two 8-foot wide sidewalks.

The roadway is of reinforced concrete slab construction with a bitulithic pavement. The under side of the bridge is protected by cast-iron blast plates fastened to the beams. A clearance of 15.50 feet is provided between the under surface of the bridge and the top of the rail. The work was completed December 28, 1931, at a contract cost of \$19,948.80.

Austin Street Bridge, Charlestown.

A contract was approved April 2, 1931, with Coleman Brothers, Inc., for repairing the wearing surface of this bridge.

The work consisted of replanking the sidewalks with new 2-inch yellow pine plank, resetting the existing curb irons and renewing the roadway with new granite block paving on a black base with an asphalt filler.

The work was completed September 28, 1931, at a cost of \$20,260.25.

Broadway Bridge Over Fort Point Channel.

A contract was approved July 27, 1931, with the Pierce Company, Inc., for repairing and guniting the masonry piers of this bridge. The work was completed October 31, 1931, at a cost of \$4,087.62.

Broadway and Dover Street Bridges.

A contract was approved November 17, 1931, with W. H. Ellis & Son Company for repairing the draw fender piers of these bridges. The work will be completed early in 1932.

Brookline Avenue Bridge Over Boston & Albany Railroad.

A contract was approved May 6, 1931, with Maurice M. Devine for repairing and guniting the under surface of this bridge. The work was completed May 25, 1931, at a cost of \$1,266.02.

Butler Street Footbridge Over Rapid Transit Tracks, Dorchester.

This bridge was built to accommodate foot travel to the Butler Street Station of the Rapid Transit line. It is built of steel, 162 feet 6 inches long and 9 feet wide, supported by steel columns on concrete footings. There are four stairways, one leading to the station platform. The superstructure consists of 24-inch girder I-beams, with a reinforced concrete sidewalk; it is provided with a standard rail fence with posts at the head of the stairways provided with lights. This bridge spans three freight tracks of the New York, New Haven & Hartford Railroad and two Rapid Transit tracks; the minimum clearance being 18.1 feet. The contract was approved with Joseph A. Singarella, July 2, 1931. The work was completed October 26, 1931, at a cost of \$14,135.25.

This work was done under supervision of this division for the Highway Division.

Charlestown Bridge.

A contract was approved November 10, 1930, with the Bethlehem Shipbuilding Corporation for relining eight hydraulic cylinders of this bridge. The work was completed June 10, 1931, at a cost of \$3,585.

Charlestown Bridge.

A contract was approved March 28, 1931, with Joseph A. Singarella for removing old asphalt sidewalk on southerly side of the bridge and replacing it with a reinforced concrete sidewalk 10 feet wide and 800 feet long. Work was completed April 18, 1931, at a cost \$1,691.55.

Granite Avenue Bridge.

A contract was approved June 27, 1931, with the Pierce Company, Inc., for rebuilding the southerly wing wall of the Milton abutment. The Milton abutment was pointed with gunite and the joints of the Boston abutment were pinned and pointed. The work was completed September 4, 1931, at a cost of \$4,863.50.

One half of the cost of this work was paid for by the County of Suffolk and one half by the Town of Milton.

Malden Bridge Over Mystic River.

A contract was approved August 20, 1931, with the Bethlehem Shipbuilding Corporation for renewing the four top pins in the counterweight links. The work was completed September 12, 1931, at a cost of \$4,097.

McCraw Street Footway, West Roxbury.

A contract was approved April 12, 1931, with Thomas Mulcare, Inc., for building a concrete footway under the tracks of the New York, New Haven & Hartford Railroad to connect McCraw street with the Bellevue Railroad Station. It is 40 feet long, 7 feet wide and 7 feet 11 inches high. A granolithic walk was built on the northerly side to connect the passageway with the station platform. Work was completed July 31, 1931, at a cost of \$5,170.25.

This work was done under the supervision of this division for the Highway Division.

Morton Street Bridge Over Midland Division New York, New Haven & Hartford Railroad.

A contract was approved April 29, 1931, with Coleman Brothers, Inc., for rebuilding this bridge. The old bridge was 40 feet wide, 28 feet long, with two sidewalks $4\frac{1}{2}$ feet wide, wooden stringers, with a wooden deck and granite abutment.

The new bridge is built to accommodate four tracks. The two middle tracks have a clearance of 18 feet, the two outside tracks will have 17.52 feet clearance. The new bridge is 80 feet wide and 76 feet long with a roadway 56 feet wide and two 12-foot sidewalks. The new bridge is supported by two reinforced concrete abutments and two steel piers on concrete foundations; the superstructure consists of I-beams encased in con-

crete with a reinforced slab and bitulithic roadway; the underside of the bridge has cast-iron blast plates and protection plates fastened to the I-beams; the sidewalks are reinforced concrete. Two flights of concrete steps were built to connect the street with the station platforms. The work was completed November 30, 1931, at a contract cost of \$59,502.67.

*Mystic Avenue Bridge Over Boston & Maine Railroad
and Boston & Albany Railroad.*

A contract was approved with Hill & Delaney, July 7, 1931, for repaving the roadway with granite blocks and replanking the sidewalks with 2-inch planking. The Boston & Maine Railroad repaired the steelwork and painted the structure.

The work was completed September 24, 1931, at a cost of \$3,400.61.

Northern Avenue Bridge.

A contract was approved with Rideout, Chandler & Joyce, July 10, 1931, for installing eight new compressed air tanks, new piping and valves. This equipment is used for operating the drawbridge and the end lifts. The work was completed October 21, 1931, at a cost of \$7,871.

The necessity for renewing these tanks was due to a reduction of air pressure, required by the Massachusetts Department of Safety, to such an extent that the draw could not be operated.

Shawmut Avenue Bridge.

A contract was approved with Coleman Brothers, Inc., August 5, 1931, for rebuilding this bridge.

The bridge was about 116 feet long and 60 feet wide, supported at each end by granite abutments with a central stone pier. The old bridge had two roadways 18 feet 6 inches wide, paved with granite blocks, and two sidewalks 7 feet 9 inches wide with a plank surface. The superstructure consisted of three steel plate girders with steel floor beams. The new bridge is built of steel I-beams encased in concrete, with a 6-inch reinforced slab. The underside of the bridge is protected with cast-iron blast plates and steel plates. There is one roadway 40 feet 6 inches wide with a 2-inch bitulithic surface and two granolithic sidewalks 9 feet 9 inches

wide. The minimum clearance over the Boston & Albany Railroad is 15 feet 6 inches and over the New York, New Haven & Hartford Railroad is 16.07 feet. The work was completed December 7, 1931, at a cost of \$43,952.46.

Sprague Street Bridge, Hyde Park.

A contract was approved with the New England Maintenance Company, Inc., March 31, 1931, for re-decking this bridge. A new deck was laid on which 2-inch asphalt planking was placed as a wearing surface, replacing the old 2-inch spruce. The sidewalks were also replanked. The work was completed August 8, 1931, at a cost of \$11,785.

Summer Street Bridge Over Fort Point Channel.

A contract was approved with the Pierce Company, Inc., June 17, 1931, for cleaning and painting this bridge. All the steel superstructure, including gates and fences, were cleaned and painted. The city supplied the paint. The work was completed October 19, 1931, at a cost of \$2,600.

Warren Bridge.

A contract was approved with the Bethlehem Shipbuilding Corporation January 29, 1931, for repairing the draw span and machinery of this bridge. This work was made necessary by the fouling of the draw by a vessel going through the waterway. The draw span which had been partially displaced by this collision was jacked back into place, its trucks replaced and the tracks repaired, relined and respiked. The trucks were overhauled and replaced. The work was completed February 5, 1931, at a cost of \$2,515.88.

The fender guards and other wood work on the waterway was repaired by W. H. Ellis & Son Company, under contract approved October 24, 1931. The work was completed December 1, 1931, at a cost of \$3,142.65.

Day Labor Force.

The day labor force made repairs to Broadway Drawbridge, over the Boston & Albany Railroad. The 4-inch wooden planking was replaced by 6-inch creosoted yellow pine plank and the wooden block

flooring was replaced by asphalt plank. The steel-work under the floor was cleaned and painted.

On Malden Bridge the woodwork of the draw span was completely rebuilt with asphalt plank wearing surface in the roadway.

At Meridian Street Bridge the East Boston end of the pile structure at the draw span was rebuilt, in conjunction with the Boston Elevated Railway Company.

Reservoir Road Bridge, over the Boston & Albany Railroad, was rebuilt; the railroad placing new steel work and deck planking and the city rebuilding the wearing surface, which is made of asphalt plank.

Fairmount Avenue Bridge, Dorchester Avenue Bridge, over the railroad and other bridges, had the wearing surfaces replaced with asphalt plank.

At Summer Street Bridge, over Fort Point Channel, the shelter houses and draw house have been painted and repaired.

MISCELLANEOUS REPAIRS FOR OTHER DIVISIONS AND DEPARTMENTS OF THE CITY.

Institutions Department — Long Island.

A contract was approved with the Bay State Dredging and Contracting Company February 14, 1931, for dredging out the berth for the coal barges at the coal pocket at Long Island. It was dredged to a depth of 15 feet below mean low water at a bid price of \$0.74 per cubic yard for material excavated.

The work was done under the direction of this division for the Institutions Department and was completed March 3, 1931, at a cost of \$3,234.54.

A contract was approved with Buck-McDonald Company August 5, 1931, for repairing the wood work and existing piling and for driving a series of new fender piles at the easterly wharf. These repairs were made under the direction of this division for the Institutions Department. The work was completed November 13, 1931, at a cost of \$6,861.

Sanitary Division — Refuse Stations.

A contract was approved with the Bay State Dredging and Construction Company July 2, 1931, for dredging docks of Victory Road and Albany Street Garbage Stations. This work was made necessary by

the spilling over into the dock of refuse when being dumped into scows. It was done under the direction of this division for the Sanitary Division. The work was completed July 18, 1931, at a cost of \$11,518.80.

A contract was approved with the New England Maintenance Company July 30, 1931, for miscellaneous repairs consisting of some new piling, repairs to old piling, refitting new spurshores, new sheathing and planking at the receiving stations at Victory road, Dorchester, and Albany street, Boston. Work was completed October 19, 1931, at a cost of \$10,497.53.

A similar contract was approved with the same company December 7, 1931, for repairing the receiving station at Fort Hill Wharf, Atlantic avenue, in the same manner as the above. Work was completed December 30, 1931, at a cost of \$6,189.50.

HIGHWAY DIVISION.

Nashua Street Circle Bulkhead.

A contract was approved with Coleman Brothers, Inc., July 27, 1931, for the construction of a wooden bulkhead at the Nashua Street Circle. This is a temporary bulkhead to accommodate the construction of the roadway under the Cambridge Viaduct. This work was done under the supervision of this division for the Highway Division. The work was completed September 21, 1931, at a cost of \$10,886.63.

FERRY SERVICE.

The following ferryboats are in commission:

Name.	When Built.	Length.	Gross Tons
John H. Sullivan.....	1912	172 ft. 3 in.	527
Lieutenant Flaherty.....	1921	174 "	727
Ralph J. Palumbo.....	1921	174 "	755
Charles C. Donoghue.....	1926	174 " 4 in.	756.77
Daniel A. MacCormack.....	1926	174 " 4 in.	756.77
General Sumner.....	1930	174 " 4 in.	779

All these boats are of the propeller type and are all steel boats.

The work of this division for the year consisted entirely of maintenance work with no major repairs and no emergency work of any magnitude.

"DANIEL A. MACCORMACK."

A contract with the Richard T. Green Company for repairs and minor renewals to the ferryboat "Daniel A. MacCormack" was approved February 14, 1931. Included in the contract were the cleaning and painting of the whole boat and such repairs to the hull and machinery as were required by the United States Steamboat Inspection Service before the issuance of annual papers for the boat to remain in service for the succeeding year. The work was completed March 16, 1931, at a cost of \$4,914.80.

"LIEUTENANT FLAHERTY."

A contract with the Richard T. Green Company for repairs incidental to inspection by the United States Inspection Service was approved May 4, 1931. Included in the contract were the furnishing and installing of a new feed pump, a new jacking gear for the main engines, recanvassing of the upper deck, repairing the guards and ends of the main deck, rebabbitting of horseshoes of the main thrust bearings and the furnishing and installing of 620 new condenser tubes. The work was completed June 23, 1931, at a cost of \$11,374.50.

"JOHN H. SULLIVAN."

A contract with the Richard T. Green Company for repairs incidental to inspection by the United States Inspection Service was approved August 7, 1931. Included in the contract were the rebabbitting of seven horseshoes of the main thrust bearings, four brasses for main bearings and the furnishing and installing of a ten K. W. turbo generator. Work was completed September 8, 1931, at a cost of \$7,775.

On August 11, 1931, the Richard T. Green Company was directed to perform the following extra work under its contract for repairing hull, etc., of ferryboat "John H. Sullivan," dated August 7, 1931. Remove after tail shaft, furnish and fit new composition sleeve, machine and reinstall; the price did not include such electric welding on the shaft as was required before installing new sleeve.

The nature of this necessary work was such that it could not be anticipated until the boat was on the railway.

Estimated cost of extra work was \$750.

"RALPH J. PALUMBO."

A contract with the Richard T. Green Company for repairs incidental to inspection by the United States Inspection Service was approved October 15, 1931. Included in the contract were the furnishing and installing of a new feed pump, three hundred and six condenser tubes, two new bronze tube sheets for the condenser and the welding of pitted areas of the propellers. Work was completed November 16, 1931, at a cost of \$7,623.80.

"CHARLES C. DONOGHUE."

A contract with the Richard T. Green Company for repairs incidental to inspection by the United States Inspection Service was approved November 30, 1931. Other than cleaning and painting, the repairs required were of minor importance. The work was completed December 26, 1931, at a cost of \$4,016.50.

REPAIRS TO PIERS.

A contract with the W. H. Ellis & Son Company for repairs to piers at North and South Ferries was approved February 19, 1931. In completing the terms of the

contract 205 new piles were driven, more than 50 per cent of which were over 55 feet in length; 2,455 linear feet of new oak girders were secured in place; four new pier heads were rebound with cable or chain and 300 yards of gravel filling deposited around the piles to increase stiffness of the piers generally. Work was completed May 29, 1931, at a cost of \$13,302.50.

A contract with the Roy B. Rendle Company for further renewals at North and South Ferries was approved December 4, 1931. Work did not progress far during the remainder of the year after the signing of the contract. The work will be completed early next year.

A contract was approved with W. H. Ellis & Son Company, July 24, 1931, for removing the coal pocket at the South Ferry pier, East Boston, down to the level of the deck of the wharf. The work was completed September 21, 1931, at a cost of \$485.

DEPARTMENT FORCE.

During the year machinists, carpenters, painters, riggers and electricians, who make up the personnel of the department force, made all repairs possible to the plant to the extent of equipment at their disposal. This work was made up mainly of minor repairs to the machinery on the boats, repairs to ferry bridge machinery, ferry bridge roadways and headhouse repairs in general.

Yours respectfully,

JOHN E. CARTY,
Division Engineer.

Tidewater Bridges.

BRIDGES.	Drawtenders' Salaries.	Mechanics' Wages.	Material.	Repair Bills.	Supplies.	Total.
Broadway.....	\$16,344 68	\$564 04	\$106 73	\$184 86	\$429 81	\$17,630 12
Charlestown.....	22,263 90	3,672 29	1,308 67	2,638 64	683 53	30,567 03
Chelsea North.....	18,704 38	2,839 44	1,322 13	2,572 58	1,046 94	26,485 47
Chelsea South.....	18,494 29	426 15	434 25	1,315 57	824 38	21,494 64
Chelsea Street.....	16,557 52	559 96	115 40	454 39	359 36	18,046 63
Congress Street.....	17,182 73	390 50	53 64	950 50	670 28	19,247 65
Dorchester Avenue.....	16,260 82	1,620 77	1,670 10	1,517 51	464 30	21,533 50
Dover Street.....	16,136 73	524 84	143 06	541 29	276 08	17,622 00
L Street *.....	16,288 52	921 89	271 77	614 62	427 56	18,524 36
Malden.....	16,951 77	5,170 19	2,366 67	2,512 41	623 89	27,624 93
Meridian Street.....	16,776 16	4,153 17	2,140 74	3,418 80	506 56	26,995 43
Northern Avenue.....	18,717 64	5,209 03	2,076 85	3,808 69	3,186 49	32,998 70
Summer Street.....	16,518 06	2,844 21	1,904 18	1,231 07	377 09	22,874 61
Warren.....	16,910 65	5,167 96	2,389 71	5,006 55	482 92	29,957 79
Totals.....	\$244,107 85	\$34,064 44	\$16,303 90	\$26,767 48	\$10,359 19	\$331,602 86

* Now Summer Street, over Reserved Channel.

SPECIAL APPROPRIATIONS.

BRIDGES, REPAIRS, ETC.

ARLINGTON STREET BRIDGE.

Test pile	\$1,611 87	
Photographs	45 00	
		\$1,656 87

AUSTIN STREET-PRISON POINT BRIDGE.

Coleman Brothers, Inc.	\$20,993 45	
Inspection of lumber	20 00	
Advertising	16 50	
Supplies	21 92	
		21,051 87

BROADWAY BRIDGE, OVER BOSTON & ALBANY RAILROAD.

Material	\$5,454 98	
Inspection of lumber	40 00	
Repairing trusses	734 76	
Removing rubbish	79 85	
Flagman services	153 27	
		6,462 86

BROADWAY BRIDGE, OVER FORT POINT CHANNEL.

The Pierce Company, Inc.	\$4,087 62	
Advertising	17 00	
		4,104 62

BROOKLINE AVENUE BRIDGE.

Maurice M. Devine	\$1,266 02	
Advertising	8 00	
		1,274 02

CAMBRIDGE STREET BRIDGE, ALLSTON.

The Pierce Company, Inc.	\$21 71	
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CHARLESTOWN BRIDGE.

J. A. Singarella	\$1,691 55	
Bethlehem Shipbuilding Corporation, Ltd.	4,179 00	
Repair bills	1,535 91	
Advertising	8 25	
		7,414 71

CHELSEA NORTH BRIDGE.

The Pierce Company, Inc.	\$946 87	
Repairing paving	1,279 84	
Repair bills	585 00	
Photographs	9 45	
		2,821 16

Carried forward \$45,607 82

PUBLIC WORKS DEPARTMENT.

31

Brought forward \$45,607 82

DORCHESTER AVENUE BRIDGE.

W. H. Ellis & Son Company	\$799 43	
Repairing paving	864 78	
Material, asphalt plank	569 38	
		2,233 59

DOVER STREET BRIDGE.

New heater	398 00
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COVE STREET BRIDGE (Foot).

Repair bills	321 80
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MALDEN BRIDGE.

Bethlehem Shipbuilding Corporation, Ltd.	\$6,125 74	
Inspection of pins	56 50	
Repair bills	1,026 09	
Material	613 11	
Advertising	49 95	
Labor	670 00	
		8,541 39

MERIDIAN STREET BRIDGE.

W. H. Ellis & Son Company	\$339 91	
Repairing paving	130 49	
Advertising	44 76	
		515 16

MILTON STREET BRIDGE.

Material, asphalt plank	646 90
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MORTON STREET BRIDGE.

Test borings	150 88
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MYSTIC AVENUE BRIDGE.

Hill & Delaney	\$2,890 52	
Advertising	8 00	
		2,898 52

NORTHERN AVENUE BRIDGE.

W. H. Ellis & Son Company	\$8,482 25	
A. G. Tomasello & Son Company	1,373 76	
Rideout, Chandler & Joyce	7,871 00	
Painting cylinders	72 00	
Advertising	8 00	
Material	142 46	
Supplies	21 92	
Transit Department pay roll	139 60	
		18,110 99

PRESCOTT STREET BRIDGE.

Repair bills	\$421 89
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SPRAGUE STREET BRIDGE.

New England Maintenance Company	\$13,124 81	
Inspection of lumber	135 45	
Advertising	8 50	
Supplies	21 91	
		13,290 67

Carried forward \$93,137 61

Brought forward \$93,137 61

SUMMER STREET BRIDGE.

Maurice M. Devine	\$1,998 37	
The Pierce Company, Inc.	2,600 00	
Material, paint	1,460 23	
Analysis of paint	53 00	
Advertising	8 00	
Material from Transit Department	332 72	
Transit Department pay roll	1,319 85	
		7,772 17

TREMONT STREET BRIDGE.

Repairing paving	406 20
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WARREN BRIDGE.

Bethlehem Shipbuilding Corporation, Ltd.	\$2,515 88.	
W. H. Ellis & Son Company	2,548 64	
Advertising	14 70	
Tidewater assessment	7 88	
		5,087 10

WEBSTER STREET BRIDGE.

Repairs	197 90
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WORDSWORTH STREET BRIDGE.

Repairs	268 20
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Total	\$106,869 18
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ALBANY STREET BRIDGE.

Coleman Brothers, Inc.	\$15,579 65	
Inspection of steel	89 06	
Advertising	17 00	
Office supplies	72 20	
Engineering	1,106 21	
		\$16,864 12

CONGRESS STREET BRIDGE.

Coleman Brothers, Inc.	\$48,604 86	
Boston Bridge Works, Inc.	385 53	
Desmond & Lord	693 37	
Replacing switchboard	877 08	
New siren	373 05	
Photographs	80 00	
		\$51,013 89

MORTON STREET BRIDGE.

Coleman Brothers, Inc.	\$55,948 44	
New York, New Haven & Hartford Railroad	1,101 97	
Inspection of steel	151 34	
Advertising	26 00	
Care of lanterns on detour	94 35	
Material, paint	242 73	
New fence	485 88	
Photographs	112 32	
Rent of electric time switch and electric connection	13 46	

<i>Carried forward</i>	\$58,176 49
----------------------------------	-------------

<i>Brought forward</i>	\$58,176 49
Engineers' instruments	29 44
Office supplies	238 76
Traveling expense	164 10
Engineering	11,772 19
	<u>\$70,380 98</u>

SHAWMUT AVENUE BRIDGE.

Coleman Brothers, Inc.	\$37,359 59
Inspection of steel	327 60
Material, red lead	37 73
Advertising	17 00
Office supplies	133 25
Engineers' instruments	29 20
Engineering	7,182 95
	<u>\$45,087 32</u>

SUMMER AND L STREETS, WIDENING AND CONSTRUCTION OF.

Coleman Brothers, Inc.	\$59,555 59
Coleman Brothers, Inc. (drawtenders' house)	982 50
Coleman Brothers, Inc. (bills)	2,651 47
Bethlehem Shipbuilding Corporation, Ltd.	1,322 89
Connor Electric Corporation	1,848 00
Material	327 00
Inspection of steel	8 50
Stairs and landing	457 47
Office supplies	34 30
Transit Department (bills)	2,477 07
Engineering	1,652 14
	<u>\$71,317 03</u>

GRANITE AVENUE BRIDGE.*

Drawtenders' salaries	\$2,696 70
Labor	10 00
Material	2 29
Repair bills	1,270 27
The Pierce Company, Inc.	2,748 09
V. James Grande	349 72
Advertising	5 00
Supplies	51 19
Total	<u>\$7,133 26</u>

* Maintained jointly by County of Suffolk and Town of Milton.

Draw Openings 1931. (Granite Avenue Bridge.)

	STEAMERS.			SAILING VESSELS.			TUGS.			BARGES.			ALL OTHERS.			TOTAL NUMBER OF VESSELS.			Total Number of Cargoes.	Total Number of Openings.
	Day.	Night.	Total.	Day.	Night.	Total.	Day.	Night.	Total.	Day.	Night.	Total.	Day.	Night.	Total.	Day.	Night.	Total.		
Openings.....				2		2	173	8	181	87	4	91	81	20	101	343	32	375	46	252

Draw Openings 1931.

BRIDGES.	STEAMERS.			SAILING VESSELS.			TUGS.			BARGES.			ALL OTHERS.			TOTAL NUMBER OF VESSELS.			Total Number of Carries.	Total Number of Openings.
	Day.		Total.	Day.		Total.	Day.		Total.	Day.		Total.	Day.		Total.	Day.		Total.		
	Night.			Night.			Night.			Night.			Night.			Night.				
Broadway.....	2	26	28	32	43	36	61	816	288	24	312	138	8	146	123	1,215	123	1,338	334	745
Charlestown.....	28	36	64	37	2	39	633	2,363	363	126	489	958	677	1,635	1,474	3,116	1,474	4,590	1,028	1,384
Chelsea North.....	1,526	114	1,640	14	3	17	9,620	10,243	1,587	215	1,802	685	75	760	13,432	1,030	14,462	1,587	5,358	
Chelsea South.....	43	4	47	18		18	3,461	77	3,538	82	4	86	2,070	171	2,241	5,674	256	5,930	1,605	2,034
Chelsea Street.....	113	66	179				1,688	691	2,379	97	95	192	1,637	132	1,769	3,555	984	4,519	1,126	2,505
Congress Street.....	122	23	145	37	4	41	1,864	136	2,000	566	41	607	518	53	571	3,107	257	3,364	571	1,849
Dorchester Avenue.....		4	4	31	3	34	989	56	1,045	301	22	323	354	19	373	1,675	104	1,779	381	931
Dover Street.....	3	14	17	32	3	35	952	74	1,026	297	26	323	346	10	356	1,630	129	1,759	366	801
L Street *.....	11	5	16	249	16	265	364	1	365	92		92	751	77	828	1,467	99	1,566	63	1,389
Malden.....	98	73	171	5		5	283	27	310	88	3	91	200	100	300	674	203	877	230	633
Meridian Street.....	888	524	1,412	82	4	86	5,792	1,462	7,254	844	515	1,359	4,505	414	4,919	12,111	2,919	15,030	2,273	8,051
Northern Avenue.....	453	349	802	59	8	67	3,437	188	3,625	528	41	569	1,508	68	1,576	5,985	654	6,639	1,351	3,226
Summer Street.....	124	2	126	40	3	43	1,974	125	2,099	531	39	570	466	30	496	3,135	199	3,334	657	1,835
Warren.....	19	35	54	43	1	44	1,747	562	2,309	583	102	685	1,002	635	1,637	3,394	1,335	4,727	912	2,442
Totals.....	3,430	1,275	4,705	679	53	732	34,656	4,716	39,372	6,247	1,253	7,500	2,469	17,607	60,150	97,667	9,766	69,916	12,484	33,183

* Now Summer Street, over Reserved Channel.

FERRY SERVICE.

FINANCIAL STATEMENT FOR THE YEAR ENDING DECEMBER 31, 1931.

Receipts for the year (net income)		* \$88,781 43
Ordinary expenses (maintenance ap- propriation)	\$560,744 34	
Interest paid on ferry debt	29,547 50	
Depreciation on ferryboats	84,433 79	
Decrease in value of machinery and tools	362 97	
Decrease in value of fuel on hand,	390 60	
Decrease in value of supplies on hand	1,998 56	
Net outgo for the year		<u>677,477 76</u>
Net loss for the year		<u>† \$588,696 33</u>

* Includes \$7.37 in hands of cashier.

† Does not include expenditures for special appropriations.

Balance Sheet.
End of Fiscal Year, December 31, 1931.

ASSETS.		LIABILITIES.	
AVAILABLE ASSETS:		CURRENT LIABILITIES:	
Cash in hands of tollmen at close of year.....	\$200 00	None.	
Cash in hands of cashier at close of year *.....	7 37		
Ferriages receivable.....	9 60		
Inventory of supplies, viz.:			
Fuel.....	3,013 20		
Supplies for maintenance.....	7,332 34		
Rents receivable.....	1,376 04		
Total available assets	\$11,938 55		
CONTINGENT ASSETS:		CONTINGENT LIABILITIES:	
City Treasurer	60,013 20	Appropriations account.....	\$60,013 20
FIXED ASSETS:		FIXED LIABILITIES:	
Real estate, land and buildings ¹	² 610,100 00	Capital of the city invested in the ferries, viz.:	
Ferryboats ³	1,118,633 42	Total expenditures of all kinds for seventy-	
Machinery, tools, etc.....	3,601 74	four years, including interest on ferry	
		debt.....	\$24,539,717 94
Total tangible assets.....	\$1,804,316 91	Less total receipts.....	8,610,564 86
Deficiency or loss by operation and maintenance	14,184,849 37		15,929,153 08
of the ferries for seventy-four years to date....			
	\$15,989,166 28		\$15,989,166 28

* Does not include \$7.37 in hands of cashier.

¹ Original purchase.....	\$276,375 00	² Assessors' figures.	
New buildings, drops, slips, cost to 1913.....	607,523 64	³ Total cost to date, per ferry books.....	\$2,529,820 50
Land, Lincoln's Wharf, cost to 1887.....	5,362 52	Less boats sold, depreciated or destroyed.....	1,411,157 08
Land, Battery Wharf, cost to 1893.....	10,000 00		<u>\$1,118,663 42</u>
New drops, both ferries, cost from 1923 to Decem- ber 31, 1931.....	\$899,461 16		
	886,648 44		
	<u>\$1,786,109 60</u>		

Total Expenditures Upon Ferries Since 1858-59.

Expenditures for avenues, paving, interest, etc., previous to the purchase of the ferries by the city	\$444,101 30
Purchase of the ferries, April, 1870	276,375 00
Expenditures for ferryboats since April, 1870,	2,529,820 50
Expenditures for new buildings, piers, drops, etc.	1,491,468 89
Expenditures for tools and fixtures (prior to 1910)	14,752 46
Expenditures for land from Lincoln's Wharf in 1887	5,652 52
Expenditures for land from Battery Wharf in 1893	10,000 00
Total expenditures on capital account . .	\$1,772,080 67
Expenditures for repairs of all kinds . . .	2,734,452 13
Expenditures for fuel	2,907,233 36
Expenditures for salaries and wages . . .	11,037,894 02
Expenditures for all other purposes . . .	3,088,057 76
	<u>\$24,539,717 94</u>

Total Receipts from Ferries Since 1858-59.

Receipts from rents, etc., previous to pur- chase of ferries	\$29,588 56
Receipts from ferry tolls since purchase of ferries	8,274,319 50
Receipts from rents since purchase of ferries,	72,694 90
Receipts from sale of ferryboats	168,004 57
Receipts from all other sources, per ferry books	35,429 85
Receipts from all other sources, additional, per City Auditor	30,734 85
Total receipts from all sources	\$8,610,772 23
Less amount with tollmen as cap- ital	\$200 00
Less amount in hands of cashier	7 37
	207 37
Total receipts, auditor's reports	<u>\$8,610,564 86</u>

RECEIPTS AT EACH FERRY.

North Ferry.

FROM TOLLMEN.	From Foot Passengers.	From Tickets.	Totals.
Boston side.....	\$2,651 44	\$2,092 80	\$4,744 24
East Boston side.....	2,563 70	1,807 20	4,370 90
Totals.....	\$5,215 14	\$3,900 00	\$9,115 14

From tollmen	\$9,115 14
From gatemen:	
11,566 foot passengers at 1 cent,	\$115 66
Cash fares for teams	5,719 20
	<u>5,834 86</u>
Total at North Ferry	<u>\$14,950 00</u>

South Ferry.

FROM TOLLMEN.	From Foot Passengers.	From Tickets.	Totals.
Boston side.....	\$5,845 96	\$4,966 80	\$10,812 76
East Boston side.....	5,776 97	3,967 20	9,744 17
Totals.....	\$11,622 93	\$8,934 00	\$20,556 93

From tollmen	\$20,556 93
From gatemen:	
38,305 foot passengers at 1 cent,	\$383 05
Cash fares for teams	46,549 35
	<u>46,932 40</u>
Total at South Ferry	<u>\$67,489 33</u>

North and South Ferries	\$82,439 33
Tickets paid for at ferry office	5,133 60
Tickets sold and paid for through City Collector's office	461 20
Received in lieu of free ferries, July 4, 1930, 1931, ...	2 00
Total from rates	\$88,036 13
Rents for the year	193 17
Headhouse privileges	400 00
Care of public telephone booths	48 00
Commission on public telephones	104 13
Total receipts for the year	* \$88,781 43

* Includes \$53.60 tickets sold in 1930 and paid for in 1931. Does not include \$9.60 sold in 1931 and not paid for.

TRAVEL ON THE FERRIES FROM JANUARY 1, 1931, TO
DECEMBER 31, 1931, INCLUSIVE.

	North Ferry.	South Ferry.
Foot passengers at 1 cent each	533,080	1,200,598
Foot passengers by ticket	15,118	6,252
Total foot passengers	<u>548,198</u>	<u>1,206,850</u>

	North Ferry.	South Ferry.
Hand cart, or wheelbarrow and man 5 cents	23,410	64,388
Horse and rider 5 cents		
Horse and cattle, each with attendant 5 cents		
One or two horse vehicle with driver 5 cents		
Motorcycle with driver 5 cents	42,913	274,320
Trailer 10 cents		
Three or four horse vehicle with driver 10 cents		
Passenger automobile with driver and one passenger 10 cents		
Passenger automobile with driver and more than one passenger 15 cents	64,507	195,760
Motor truck, six tons or less, with driver 15 cents		
Motor truck over six tons, with driver 20 cents	6,088	7,186
Auto bus with driver 20 cents		
Auto bus with driver and passengers 30 cents	2,403	1,053
	<u>138,321</u>	<u>542,707</u>

Changes in rates of tolls on city ferryboats were made during the year 1930. The first rate, effective January 1, was superseded on April 1, 1930, by the rates which are now effective, and are as follows:

PASSENGERS.

On and after April 1, 1930, the tolls on the East Boston Ferries will be as follows:

Foot passengers	1 cent.
---------------------------	---------

VEHICLES.

One or two horse vehicle with driver	5 cents.
Motorcycle with driver	5 cents.
Trailer	10 cents.
Three or four horse vehicle with driver	10 cents.
Passenger automobile with driver and one passenger, ...	10 cents.
Passenger automobile with driver and more than one	15 cents.
Motor truck, six tons or less, with driver	15 cents.
Motor truck, over six tons, with driver	20 cents.
Auto bus with driver	20 cents.
Auto bus with driver and passengers	30 cents.

MISCELLANEOUS.

Hand cart, or wheelbarrow and man	5 cents.
Horse and rider	5 cents.
Horse and cattle, each with attendant	5 cents.

TICKETS FOR VEHICLES.

Tickets in books of ten to be sold at a reduction of 20 per cent.

FUNERAL PROCESSIONS.

Funeral processions pass free of tolls.

Motor Vehicle Traffic (Reports of Captains).*January 1, 1931, to December 31, 1931.*

	North Ferry.	South Ferry.	Totals.
Passenger cars.....	65,117	378,505	443,622
Trucks	49,705	117,239	166,944
Totals.....	* 114,822	† 495,744	610,566

* Includes 4,743 free.

† Includes 13,457 free.

Total paying foot passengers	1,755,048
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Total foot passengers carried	<u>1,755,048</u>
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Total paying teams, passenger cars and trucks .	681,028
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Total free teams	<u>18,200</u>
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APPENDIX B.

REPORT OF THE DIVISION ENGINEER OF THE
HIGHWAY DIVISION.

BOSTON, January 2, 1932.

MR. JOSEPH A. ROURKE,

Commissioner of Public Works.

DEAR SIR,—I submit herewith a statement of the activities, operations and expenditures of the Highway Division for the year ending December 31, 1931.

The maintenance expenditures of the division for the year were as follows:

Lighting Service	\$998,042 63
Paving Service	1,496,534 55
Total	<u>\$2,494,577 18</u>

PAVING SERVICE.

The work done in 1931 has been greater in volume than ever before in any one single year in the history of the city.

Under the item of "Highways, Making of," four unfinished contracts of 1930 were finished in 1931.

One hundred and two contracts were awarded in 1931, of which ninety were completed and twelve unfinished.

Under the item of "Reconstruction of Streets" there were one hundred and twenty-seven streets rebuilt by contract.

The total expenditure for all the aforementioned is:

Reconstruction of Streets	\$1,175,000
Highways, Making of	970,000

Nearly all the work of Reconstruction of Streets consisted of smooth pavement laid on concrete base with new artificial stone sidewalks. In addition there were

over fifty streets in which new artificial stone sidewalks were laid on either one or both sides of the street.

Two contracts were awarded for repaving of streets having an asphalt or bitulithic surface and on which the maintenance guarantee had expired. The city was divided into two sections and a contract awarded in each section.

The outstanding work done for the year 1931 is as follows:

Brighton.— Market street and Western avenue.

East Boston.— Maverick street.

South Boston.— East Eighth street; Summer street; L street; Northern avenue; Congress street; Sleeper street; Farnsworth street.

Roxbury.— Magazine street; East Cottage street.

Dorchester.— Hancock street; Washington street; Dorchester avenue.

Charlestown.— Rutherford avenue and City square.

Hyde Park.— Hyde Park avenue.

Contracts have been awarded and work is in progress on two important thoroughfares, namely:

Preble Street, South Boston.— Between Dorchester avenue and Old Colony avenue.

Centre street, West Roxbury.— Between Weld street and South street.

The most notable piece of highway construction this year was the widening and the construction of Charles street, city proper, between Cambridge street and Leverett street.

Charles street was built with two 38-foot roadways with granite edgestone and a planted reservation in the center of 28 feet in width. The sidewalk on the Park Department side is 6 feet in width and the sidewalk on the opposite or hospital side is 10 feet in width.

At each end of the project, namely, at Cambridge and Leverett streets, there is a rotary traffic circle. At Cambridge street this area is oval in shape with a diameter of 250 feet and 225 feet.

The one at Nashua street is egg-shaped and the two diameters are 235 feet and 175 feet. The roadways are paved with asphalt with the exception of a 20-foot rim adjoining the circle which is built of granite block pavement.

In connection with this work there is also an underpass road leading under the Longfellow Bridge and known as Charlesbank road. There is also a small connecting roadway known as Westside road.

Charlesbank road is 35 feet in width and Westside road is also 35 feet in width.

In addition, a foot underpass has been built on the easterly side of Charles street leading from the south side of Cambridge street to a point opposite the Suffolk County Jail entrance.

The object of this footway or underpass is to allow pedestrians to cross the traffic circle at Cambridge street. This underpass also has connection with the new station of the Boston Elevated Railway which is now being constructed.

In addition to the work of construction done by contract, the division forces were employed in the maintenance of the streets throughout the city, resurfacing and repairing macadam roadways, relaying the paving in granite paved streets and patching old street surfaces.

LIGHTING SERVICE.

New installation of street lights have been made on North Harvard street, Brighton, consisting of fifteen 1,500 candle power Mazda lamps on concrete posts.

Charles street, from Cambridge to Leverett streets, including the two new rotary traffic circles at Cambridge and Leverett streets, has been installed with eighty-five 1,500 candle power Mazda lamps mounted on concrete posts spaced about one hundred and seven feet apart in pairs, also eleven 1,000 candle power Mazda lamps on concrete posts set apart one hundred feet which are installed on the new by-pass roadway known as Charlesbank road.

The following-named streets have had new lamp installation of 600 candle power Mazda lamps mounted on concrete posts:

Strathmore road
Sydney street
Parkman street

Waverly street
St. James street.

Washington street, West Roxbury, from La Grange street to the Dedham line, formerly lighted with gas; this 100-foot roadway with a central 30-foot street car

reservation is now brilliantly illuminated with seventy-nine 1,000 candle power lamps mounted on concrete posts. These lamp units are spaced 100 feet apart for a distance of one and one-quarter miles. The staggered arrangement was used, the units on one side being diagonally opposite the other, thus providing a uniform distribution of light.

Through the efforts of his Honor the Mayor, a reduction of the street lighting rates has been obtained, resulting in a saving to the City of Boston since September 1, 1931, when the new rates became effective, of about \$36,000. In addition, the lighting schedule has been increased from 3,828 lighting hours to 4,000 hours.

Respectfully,

JOSHUA ATWOOD,
Division Engineer.

There are in operation 22,796 arc, Mazda and gas lamps, divided as follows: 3,718 arc, 9,304 Mazda, 9,557 single mantle gas lamps and 217 single mantle fire alarm gas lamps.

LAMPS INSTALLED.

Magnetite arc lamps	32
Mazda lamps	1,182
Single mantle gas lamps	28
Single mantle gas lamps (fire alarm)	3
	1,245

LAMPS DISCONTINUED.

Magnetite arc lamps	* 513
Mazda lamps	265
Single mantle gas lamps	210
	988

On September 1, 1931, the Edison Electric Illuminating Company, and on October 1, 1931, the Boston Consolidated Gas Company, inaugurated new schedules on electric street lighting as shown on page 47.

* 460 Magnetite arc lamps changed to 1,500 candle power series Mazda.

9 Magnetite arc lamps changed to 1,475 candle power multiple Mazda.

1 Magnetite arc lamp changed to 1,000 candle power series Mazda.

NUMBER OF LAMPS DECEMBER 31, 1931.	Lamp Number and Size. (Electric.)	Cost per Year 3,828 Hours Burning. (Old Schedule.)	Flat Rate per Year 4,000 Hours Burning. (New Schedule.)	Fixed Charge per Year for Lamps not in Service. (New Schedule.)	Running Charge for Each Hour in Excess of 4,000 per Year. (New Schedule.)
21.....	Twin No. 280, 3,000 candle power series, Mazda	\$164 84	\$159 00	\$50 00	\$0 03
6,977.....	No. 80 { 1,500 candle power series, arc { 1,500 candle power series, Mazda { 1,475 candle power multiple, Mazda	93 42	89 40	36 00	0 015
115.....	No. 75 { 1,000 candle power series, Mazda { 950 candle power multiple, Mazda	81 76	80 00	32 00	0 013
229.....	No. 70 { 600 candle power series, Mazda { 528 candle power multiple, Mazda	69 28	69 00	31 00	0 01
48.....	No. 50 { 250 candle power series, Mazda { 230 candle power multiple, Mazda	40 97	39 00	18 00	0 006
87.....	No. 40, 132 candle power multiple, Mazda	27 28	27 00	13 50	0 0036
48.....	No. 30, 100 candle power series, Mazda	23 48	23 25	12 00	0 003
4,800.....	No. 20, 80 candle power series, Mazda	20 75	20 50	10 80	0 0026
	FIRE ALARM LAMPS (NEW SCHEDULE).				
342.....	Twin No. 22, 40 candle power multiple, Mazda (24 hours burning).....		24 00		
153.....	No. 21, 80 candle power series, Mazda		20 50		
202.....	No. 10, 60 candle power series, Mazda		18 50		
Total.....	13,022.				

Lamp Service.—The lamps, poles, wires, fixtures and other apparatus, appliances and materials necessary to supply service on public streets (except posts for incandescent lamps smaller than the No. 70 lamp or lamp-posts other than the company's standard post for each respective size and type of lamp) are furnished and maintained by the company. A change in size, type or location of a lamp once installed will be made only at the expense of the customer. The charge for a change in the location of an incandescent lamp fixture on overhead lines when the street lighting circuit is already installed on the pole to which the fixture is to be moved, will be ten dollars for each fixture so moved.

Outage Allowance.—A deduction for lamps not lighted during the hours called for by the existing street lighting schedule applying thereto will be made at the rate of 1 cent per lamp hour on all lamps smaller than the No. 70 lamp, and at the rate of 5 cents per lamp hour on all other lamps.

GAS LAMPS.

NUMBER OF LAMPS DECEMBER 31, 1931.	Type of Lamp.	Cost Per Year 4,000 Hours Burning.
9,557	Street.	\$24 37
217	Fire alarm.	24 37
Total. . . . 9,774		

GAS LIGHTING.

The city furnishes the lamp-posts, the Gas Company set the lamp-posts and provide service pipes laid from the gas mains to the top of the posts, maintain all such pipes and posts in good condition and repair, furnish gas, lanterns, burners and all other necessary equipment including labor for lighting and care.

The Lighting Service provides for the gas, lighting and care of fire alarm signal lamps and the Fire Department for the posts, setting and repairing of same.

An outage allowance for lamps not lighted is made at the rate of two to one, or $\frac{2}{3}$ of a year's cost for each night of outage.

STREET LAMP OUTAGES.

Rebates for lamps not lighted on schedule time or out before the proper time have been received on the various monthly bills as follows:

DATE.	Arc.	Mazda.	Gas.
January, 1931	\$169 72	\$6 73	\$9 59
February.....	197 17	7 04	39 09
March.....	167 81	10 80	14 55
April.....	86 37	4 27	9 27
May.....	62 11	3 43	5 94
June.....	50 79	98	2 88
July.....	74 94	5 48	2 75
August.....	71 80	68	4 35
September.....	80 73	7 85	5 12
October.....	127 41	3 76	6 65
November.....	150 42	3 25	3 29
December.....	136 71	8 00	4 13
Totals.....	\$1,375 98	\$62 27	\$107 61

HIGHWAY DIVISION — PAVING SERVICE.

Work Done by Contract in 1931.

	Old.	New.	Total Old and New.
Edgestone set.....	105,305 linear feet.	160,624 linear feet.	265,929 linear feet.
Concrete base laid.....	65,282 square yards.	471,836 square yards.	537,118 square yards.
Granite block laid, gravel joints.....	7,664 " "	232 " "	7,896 " "
Recut granite block laid, grout joints.....		65,704 " "	65,704 " "
Granite block laid, hip gutters.....		851 " "	851 " "
New granite block laid, grout joints.....		3,260 " "	3,260 " "
Granite block relaid, grout joints.....	30,743 square yards.		30,743 " "
Asphalt and binder laid (3-inch).....		215,819 square yards.	215,819 " "
Asphalt surface laid (1 to 2 inch).....		49,390 " "	49,390 " "
Bitulithic pavement laid.....		266,231 " "	266,231 " "
Bituminous patching contract:			
1. Full depth asphalt.....	23,010 square yards.	71,442 " "	94,452 " "
2. Full bituminous concrete.....	29,663 " "	3,435 " "	33,098 " "
3. Surface work.....	31,439 " "	561 " "	32,000 " "
4. Extra binder.....		384 tons.	384 tons.
5. Cement concrete base.....	995 square yards.		995 square yards.
Asphalt macadam.....		2,103 square yards.	2,103 " "

Extra binder	5,343 square yards.	5,159 tons.	5,159 tons.
Artificial stone sidewalks laid	7,090 " "	247,617 square yards.	252,960 square yards.
Brick sidewalks laid	270 " "	585 " "	7,675 " "
Crushed stone sidewalks laid		18,571 " "	18,841 " "
Earth excavation		165,656 cubic yards.	165,656 cubic yards.
Rock excavation		7,742 " "	7,742 " "
Filling furnished		29,186 " "	29,186 " "
Crushed stone furnished		6,890 tons.	6,890 tons.
Concrete base removed		14,967 square yards.	14,967 square yards.
Loam graded and seeded		3,735 " "	3,735 " "
Loam furnished		5,579 cubic yards.	5,579 cubic yards.
Sign posts erected		392	392
Wooden fence erected		1,765 linear feet.	1,765 linear feet.
Iron fence erected		1,673 " "	1,673 " "
Dry wells		11	11
Concrete walls		287 cubic yards.	287 cubic yards.
Concrete curb		1,875 linear feet.	1,875 linear feet.
Concrete roadway		919 square yards.	919 square yards.
Driveway foundation		5,300 linear feet.	5,300 linear feet.
Ground water drain		4,630 " "	4,630 " "
Walls and foundations removed		2,296 cubic yards.	2,296 cubic yards.

	Old.	New.	Total.
Edgestone set.....	39,255 linear feet.	3,632 linear feet.	42,887 linear feet.
Concrete base laid.....	15,955 square yards.		15,955 square yards.
Roadway, granite block, gravel joints.....	4,076 " "		4,076 " "
Roadway, granite block, grout joints.....	21,983 " "		22,804 " "
Gutter, granite block, gravel joints.....	9,701 " "	821 square yards.	22,804 " "
Gutter, granite block, grout joints.....	3,784 " "	281 " "	9,982 " "
Flagging crosswalk, gravel joints.....	1,326 " "	196 " "	3,980 " "
Roadway, wood block, sand joints.....	4,381 " "		1,326 " "
Asphalt penetration, macadam surface placed.....			4,381 " "
Macadam surface patched.....	403,090 square yards.	97,310 square yards.	97,310 " "
Asphalt blanket coat.....	22,047 " "		403,090 " "
Tar sidewalks repaired.....	10,532 " "		22,047 " "
Sheet asphalt placed.....		507 square yards.	10,532 " "
Sheet asphalt surface patched.....	8,369 square yards.		507 " "
Fences repaired.....	864 linear feet.		8,369 " "
Brick sidewalks laid.....	49,613 square yards.	430 square yards.	864 linear feet.
Artificial stone sidewalks laid.....	66,271 " "	149 " "	50,043 square yards.
Sidewalk excavating, no sidewalks laid.....		1,547 " "	66,420 " "
Gravel or crushed stone sidewalks surfaced.....	157,071 square yards.		1,547 " "
Roadway excavating, no roadway constructed.....	2,059 cubic yards.		157,071 " "
Roadway excavating, roadway changed.....	11,119 " "		2,059 cubic yards.
Grading (no pavement laid).....	16,544 square yards.		11,119 " "
Brick block pavement laid.....	5,901 " "		16,544 square yards.
Concrete roadway laid.....			5,901 " "
New-style sign post erected.....		855	855

Objects of Expenditure from the Various Appropriations, Classified by Districts, from January 1, 1931, to
December 31, 1931.

Districts.	Macadam Repairs.	Paved Street Repairs.	Removal of Snow.	Street Cleaning.	Edgestone and Sidewalk Repairs.	Street Work.	Schedule A, Miscal- laneous.	Totals.
South Boston and Dorchester North.....	\$13,010 55	\$6,386 43	\$13,061 91	\$7,524 28	\$14,749 78	\$448,820 20		\$503,553 15
East Boston and Breed's Island.....	25,639 81	1,299 21	13,380 49	1,345 42	14,761 54	77,747 64		134,174 11
Charlestown.....	3,275 62	6,681 51	10,473 38	3,000 21	10,509 89	92,044 66		125,985 27
Brighton.....	29,804 17		18,429 69	34,915 18	7,593 29	334,660 15		425,402 48
West Roxbury.....	35,860 24	6,478 02	30,124 24	29,184 89	14,012 10	567,382 15		683,041 64
Dorchester.....	26,781 83	334 30	14,021 82	16,488 69	24,267 94	331,770 27		413,664 85
Roxbury South and Jamaica Plain.....	22,813 21	4,933 52	40,595 90	61,107 83	19,050 71	330,152 82		478,673 99
City Proper.....	31,340 82	38,453 94	78,131 71	1,080 19	37,251 11	469,067 14		655,324 91
Ashmont.....	27,497 86	113 40	14,417 93	11,846 94	9,713 51	212,720 31		276,309 95
Hyde Park.....	19,313 07		14,103 06	13,641 00	11,430 55	147,802 14		206,289 82
Miscellaneous.....						* 214,178 83	†\$579,965 50	794,144 33
Totals.....	\$235,337 18	\$64,700 33	\$246,740 13	\$180,134 63	\$163,340 42	\$3,226,346 31	\$579,965 50	\$4,696,564 50

* Includes street signs, \$23,654.75; artificial stone sidewalk rebates, \$6,627.28; asphalt and bitulithic repairs, \$161,392.17; general engineering and inspection—\$21,900.84.
† Includes artificial stone sidewalk repairs, \$43,609.26; asphalt, wood block and brick block repairs, \$6,854.75.

STREET OPENINGS.

Under Classes 1 and 2 of the schedule of permit fees, permits were issued for openings in public ways, as follows:

TO WHOM ISSUED.	Number of Permits.	Length in Feet.
Sewer and Water Services.....	3,000	36,000
Edison Company.....	2,569	179,830
Miscellaneous.....	2,212	110,600
Boston Consolidated Gas Company.....	1,163	29,075
Emergency permits used and returned.....	1,155	28,875
New England Telephone and Telegraph Company.....	657	67,671
Boston Elevated Railway.....	112	16,800
Dedham and Hyde Park Gas Company.....	59	1,475
	10,927	464,326

Making a total length of openings approximately eighty-seven miles. Total of all permits issued, 17,035.

Permits for other than street openings have been issued as follows:

Painting and minor repairs	3,627
Placing signs flat on buildings	831
Erecting and repairing buildings	563
Special permits	560
Erecting and repairing awnings	305
Emergency permits for raising and lowering safes	185
Cleaning snow from roof	17
Moving building in streets	10
Raising and lowering safes	9
Driving cattle in streets	1
	<u>6,108</u>

The fees received from these permits amounted to \$21,229.93. Of this amount \$16,653.93 was deposited with the City Collector, and \$4,576 was billed to public service corporations.

BONDS.

There are now on file 3,129 surety bonds, in amount of one, three and twenty thousand dollars, covering the city against claims for damages, etc., through the use of permits.

APPENDIX C.

REPORT OF THE DIVISION ENGINEER OF
THE SANITARY DIVISION.

BOSTON, January 2, 1932.

MR. JOSEPH A. ROURKE,

Commissioner of Public Works.

DEAR SIR,—I submit herewith a statement of the activities and expenditures of the Sanitary Division for the year ending December 31, 1931.

The maintenance and expenditures of the Sanitary Division are as follows:

Sanitary Division \$3,040,994.93

Personnel Changes.—During the year twenty-six men died and twenty-nine men were retired, making a total of fifty-five separations.

Complaints.—The complaint register and form system instituted last year has been quite satisfactory, and has enabled us to analyze the whole situation. An analysis of the 5,014 complaints received at the Complaint Office is shown by the following table:

Complaint Analysis, 1931.		Per Cent.
No excuse	3,110	62.0
Breakdown of vehicle	46	0.9
Special	107	2.1
Miscellaneous	124	2.5
Total justified	3,387	67.5
Not out	182	3.6
Inaccessible	340	6.7
Wrong address	83	1.7
Frozen	88	1.8
Snow	101	2.0
Total unjustified	794	15.8
Total complaints	4,181	
Request for removal of dead animals	833	16.7
Total Central Office complaints and requests	<u>5,014</u>	<u>100.0</u>

Abandoned Automobiles.— The disposal of abandoned automobiles is handled in cooperation with the Health Department, which, under authority of chapter 185 of the Acts of 1897, orders the Public Works Department to remove automobiles from private land after due notice to the owners thereof. A unit charge of \$5 per vehicle or equivalent is made, but this charge does not include a dumping fee, Welfare labor, or overhead.

As this work was not begun until the end of 1931, no cost record or summary of receipts has been available.

Welfare Men.— The regular use of Welfare men began in March, with an assignment of 250 men. At the end of the year there were 1,803 individuals employed for a total of 2,874 days' labor per week. These men were used on ashes and street cleaning, and were of considerable assistance in keeping down the number of temporary laborers which would otherwise have been necessary to employ.

Medals for Heroism.— On March 7, 1931, his Honor the Mayor presented medals from the Society of the Prevention of Cruelty to Animals in the presence of Doctor Rowley, for services in saving horses during a fire at the West End Yard on February 19, 1931. These medals were given to the following employees of the Sanitary Division, Humphrey J. McCarron, Lawrence McGahan, Edward J. Burns, Robert J. Mason and to Samuel Koupehik of the Law Department.

Yours respectfully,

A. J. Post,
Division Engineer.

Amount Expended for the Collection and Disposal of Ashes, Garbage, Waste and Rubbish, by Districts, 1931.

Districts.	Popula- tion.	ASHES.		GARBAGE.		WASTE AND RUBBISH.		Total Cost.	Total Cost Per Capita.
		Cost.	Per Capita.	Cost.	Per Capita.	Cost.	Per Capita.		
1. South Boston.....	60,196	\$157,703 11	\$2.62	\$37,175 64	\$0.617	\$1,991 85	\$0.033	\$196,870 60	\$3.27
2. East Boston.....	60,655	43,083 57	0.71	4,554 80	0.075			47,638 37	0.79
3. Charlestown.....	30,776	78,731 64	2.56	13,487 57	0.44			92,219 21	2.998
4. Brighton.....	56,249	46,066 22	0.819	21,353 42	0.38			67,419 64	1.198
5. West Roxbury.....	61,183	71,403 74	1.167	28,152 41	0.46	1,930 87	0.32	101,487 02	1.659
6. Dorchester.....	191,447	244,333 48	1.276	61,354 09	0.32	1,829 50	0.010	307,517 07	1.606
7. Roxbury.....	150,211	308,381 93	2.053	132,283 40	0.880	41,822 90	0.278	482,488 23	3.212
8 and 9. South End and Back Bay..	87,558	347,130 30	3.964	59,365 27	0.678	47,682 42	0.545	454,177 99	5.187
10. North and West Ends.....	55,201	231,368 31	4.191	30,278 63	0.549	18,874 70	0.342	280,521 64	5.081
11. Hyde Park.....	24,802	13,483 78	0.544	3,315 12	0.134			16,798 90	0.68
Totals.....	774,278	\$1,541,686 08	\$1.990	\$391,320 35	\$0.453	\$114,132 24	\$0.254	\$2,047,138 67	\$2.568
Other services.....								53,015 21	
								<u>\$2,100,153 88</u>	

Cost of Collection and Disposal of Refuse by Contract in the City of Boston for the Year 1931.

Contract Districts and Population.	CHARACTER OF REFUSE.	Tons. (2,000 lbs.)	Total Tons.	Cost per Ton by Districts; Collection and Disposal.	Cost per DISTRICTS.		Total Cost per Capita.
					Cost.	Total Cost.	
2.. (60,655).....	{ Mixed refuse..... Garbage.....	30,856		\$1.40	\$43,083 57		
		3,693	34,549	1.233	4,554 80	\$47,638 37	\$0.79
4.. (56,249).....	{ Mixed refuse..... Garbage.....	24,841		Av. \$2.633	\$46,066 22		
		13,653	38,494	\$1.854	21,353 42	67,419 64	1.198
5.. (61,183).....	{ Mixed refuse..... Garbage.....	20,913		Av. \$3.418	\$73,334 61		
		9,039	29,952	\$3.507	28,152 41	101,487 02	1.659
6.. (101,447).....	{ Mixed refuse..... Garbage.....	91,647		Av. \$6.722	\$246,162 98		
		20,941	112,588	\$2.686	61,354 09	307,517 07	1.606
11.. Hyde Park..... (24,802)	{ Mixed refuse..... Garbage.....	6,536		Av. \$4.616	\$13,413 78		
		1,764	8,300	\$2.063	3,315 12	16,798 90	0.68
394,336	Totals.....		223,883	Av. \$3.942		\$540,861 00	\$1.371
				Av. \$2.416			

Cost of Collection and Disposal of Refuse by Day Labor Force in the City of Boston for the Year Ending December 31, 1931.

Districts and Population.	CHARACTER OF REFUSE.	COST PER TON BY DISTRICTS.					COST OF DISTRICTS.					Total Cost per Capita Collection and Disposal.
		Tons (2,000 lbs.).	Total Tons.	To Collect.	For Disposal.	Total Collection and Disposal.	To Collect.	Total Cost to Collect.	For Disposal.	Total Cost of Disposal.	Total Cost of Collection and Disposal.	
1 (60,196) . . .	Mixed refuse	42,957		\$2 732	\$0 939	\$3 671	\$117,362 09		\$40,341 02		\$157,703 11	\$3 270
	Garbage	9,726		3 173	0 648	3 821	30,805 52		6,310 12		37,175 64	
	Store refuse	130		10 914	4 407	15 321	1,418 90		572 95		1,991 85	
			52,813	Av. \$2 833	Av. \$0 894	Av. \$3 727		\$149,646 51		\$47,224 09	\$196,870 60	
3 (30,776)	Mixed refuse	20,152		\$2 967	\$0 939	\$3 906	\$59,801 27		\$18,930 37		\$78,731 64	2 996
	Garbage	3,480		3 214	0 660	3 874	11,187 66		2,297 91		13,487 57	
			23,632	Av. \$3 004	Av. \$0 898	Av. \$3 902		70,988 93		21,228 28	\$92,219 21	
5 (part) and 7 (150,211)	Mixed refuse	105,567		\$1 981	\$0 939	\$2 920	\$209,207 21		\$99,174 72		\$308,381 93	3 212
	Garbage	42,567		2 458	0 648	3 106	104,672 05		27,611 35		132,283 40	
	Store refuse	2,804		8 091	3 824	11 915	31,099 34		10,723 56		41,822 90	
			150,938	Av. \$2 285	Av. \$0 897	Av. \$3 182		\$344,978 60		\$137,509 63	\$482,488 23	
8 and 9 (87,558)	Mixed refuse	73,158		\$3 805	\$0 939	\$4 744	\$278,411 97		\$68,718 33		\$347,130 30	5 167
	Garbage	13,194		3 849	0 649	4 498	50,793 71		8,571 56		59,365 27	
	Store refuse	3,096		11 572	3 828	15 400	35,828 14		11,854 28		47,682 42	
			89,448	Av. \$4 080	Av. \$0 996	Av. \$5 076		\$365,033 82		\$89,144 17	\$454,177 99	
10 (55,201)	Mixed refuse	51,469		\$3 556	\$0 938	\$4 494	\$183,039 33		\$48,328 98		\$231,368 31	5 081
	Garbage	5,315		5 044	0 651	5 695	26,813 53		3,465 10		30,278 63	
	Store refuse	1,234		11 453	3 842	15 295	14,132 99		4,741 71		18,874 70	
			58,135	Av. \$3 852	Av. \$0 972	Av. \$4 824		\$223,986 85		\$66,536 79	\$290,523 64	
383,942	Totals		374,966	Av. \$3 211	Av. \$0 931			\$1,155,133 71		\$351,141 96	\$1,506,277 67	Av. \$3 949
Total as above							\$1,506,277 67					
Add total of contract table							540,861 00					
							\$2,047,138 67					
Other services							53,015 21					
Net amount of appropriation							<u>\$2,100,153 88</u>					

Details of Collected Refuse in Boston for the

DISTRICTS.	Popula- tion.	Class of Labor.	ASHES.																						
			CARTS.						TOTAL.	COMBINED TOTALS.		AVERAGE WEIGHT PER CUBIC YARD.		TOTAL WEIGHTS.									GRAND TOTALS.		
			NUMBER OF LOADS.			AVERAGE CAPACITY.								CITY.	HIRED.	CON- TRACT.									
			Single.	Double.	Auto.	CUBIC YARDS.											Pounds.	Tons.	Tons.	Tons.	Tons.				
						Single.	Double.	Auto.														Single.		Double.	Auto.
1. South Boston.....		City.....	5,425		6,561	2.5		14	105,417	11,986	105,417	815	.4075	42,957			42,957	1,597		1,772	2				
2. East Boston.....		Contract.....		1,282	6,931		5	10	75,720	8,213	75,720	815	.4075			30,856	30,856			626					
3. Charlestown.....		City.....	1,967		3,181	2.5		14	49,452	5,148	49,452	815	.4075	20,152			20,152	30		417	2				
4. Brighton.....		Contract.....			6,096			10	60,960	6,096	60,960	815	.4075			24,841	24,841			2,314					
5. West Roxbury*.....		Contract.....			5,132			10	51,320	9,153	97,874	815	.4075			20,913	20,913			1,532					
6. Dorchester.....		Contract.....		32,136	6,422		5	10	224,900	38,558	224,900	815	.4075			91,647	91,647		7,415	954					
7. Roxbury.....	{	City.....	3,095	5,680	15,830	2.5	5	14	257,758			815	.4075	105,037				2,768	572	4,602	2				
		Hired.....			130			10	1,300	20,714	212,504	815	.4075		530		105,567			18					
8 and 9. South End and Back Bay.....	{	City.....	25,314		8,221	2.5		14	178,379			815	.4075	72,689				4,475		958	2				
		Hired.....			115			10	1,150	33,650	179,529	815	.4075		469		73,158								
10. North and West Ends.....		City.....	29,135		3,819	2.5		14	126,304	32,954	126,304	815	.4075	51,469			51,469	3,252		501	2				
11. Hyde Park.....		Contract.....			1,604			10	16,040	1,604	16,040	815	.4075			6,536	6,536			299					
Totals.....			64,936	39,098	64,042				1,148,700	168,076	1,148,700			292,304	999	174,793	468,096	12,122	7,987	13,993					

* NOTE.—That the old town of West Roxbury, included the whole of District 5 and part of District 7 (Jamaica Plain). In report of previous years these two sets of data were included under

for the Year Ending December 31, 1931.

GARBAGE.											WASTE AND RUBBISH.														COMBINED TOTALS OF ASHES, GARBAGE, WASTE AND RUBBISH.	
CUBIC CAPACITY.		TOTALS.	COMBINED TOTALS.		AVERAGE WEIGHT PER CUBIC YARD.		TOTAL WEIGHTS.			GRAND TOTALS.	Number of Loads.	CARTS.		TOTALS.	WAGONS.			Number of Loads.	AUTOS.			COMBINED TOTALS.				
							CITY.	HIRED.	CONTRACT.			AVERAGE WEIGHT.			TOTALS.	AVERAGE WEIGHT.	TOTALS.		AVERAGE WEIGHT.	TOTALS.						
												Tons.	Tons.								Tons.			Tons.		
Double.	Auto.	Cubic Yards.	Loads.	Cubic Yards.	Pounds.	Tons.	Tons.	Tons.	Tons.		Pounds.	Tons.	Tons.		Pounds.	Tons.	Tons.		Pounds.	Tons.	Tons.	Loads.	Tons.	Loads.	Tons.	
.....	7 1/2	16,484	3,369	16,484	1,180	.59	9,726			9,726	19	1,400	.7	13		2,200	1.1			4,400	2.2		190	130	15,374	52,696
.....	10	6,260	626	6,260	1,180	.59			3,693	3,693														8,839	34,549	
.....	14	5,898	447	5,898	1,180	.59	3,480			3,480														5,595	23,632	
.....	10	23,140	2,314	23,140	1,180	.59			13,653	13,653														8,410	38,494	
.....	10	15,320	2,955	34,911	1,180	.59			9,039	9,039														6,064	29,952	
3.5	10	35,493	8,369	35,493	1,180	.59			20,941	20,941														46,927	112,588	
3.5	14	71,967			1,180	.59	42,461								426	2,200	1.1	468	1,062	4,400	2.2	2,336	1,488	2,804	34,183	150,938
.....	10	180	6,537	52,556	1,180	.59		106		42,567																
.....	14	22,362	5,433	22,362	1,180	.59	13,194			13,194	1,330			931	842		926	563	4,400	2.2	1,239	2,735	3,096	41,818	89,448	
.....	5	9,009	3,753	9,009	1,180	.59	5,315			5,315					1,122		1,234					1,122	1,234	37,829	58,018	
.....	10	2,990	299	2,990	1,180	.59			1,764	1,764														1,903	8,300	
.....		209,103	34,102	209,103			74,176	106	49,090	123,372	1,349			944	2,390		2,628	1,625			3,575	5,535	7,264	207,542	598,615	

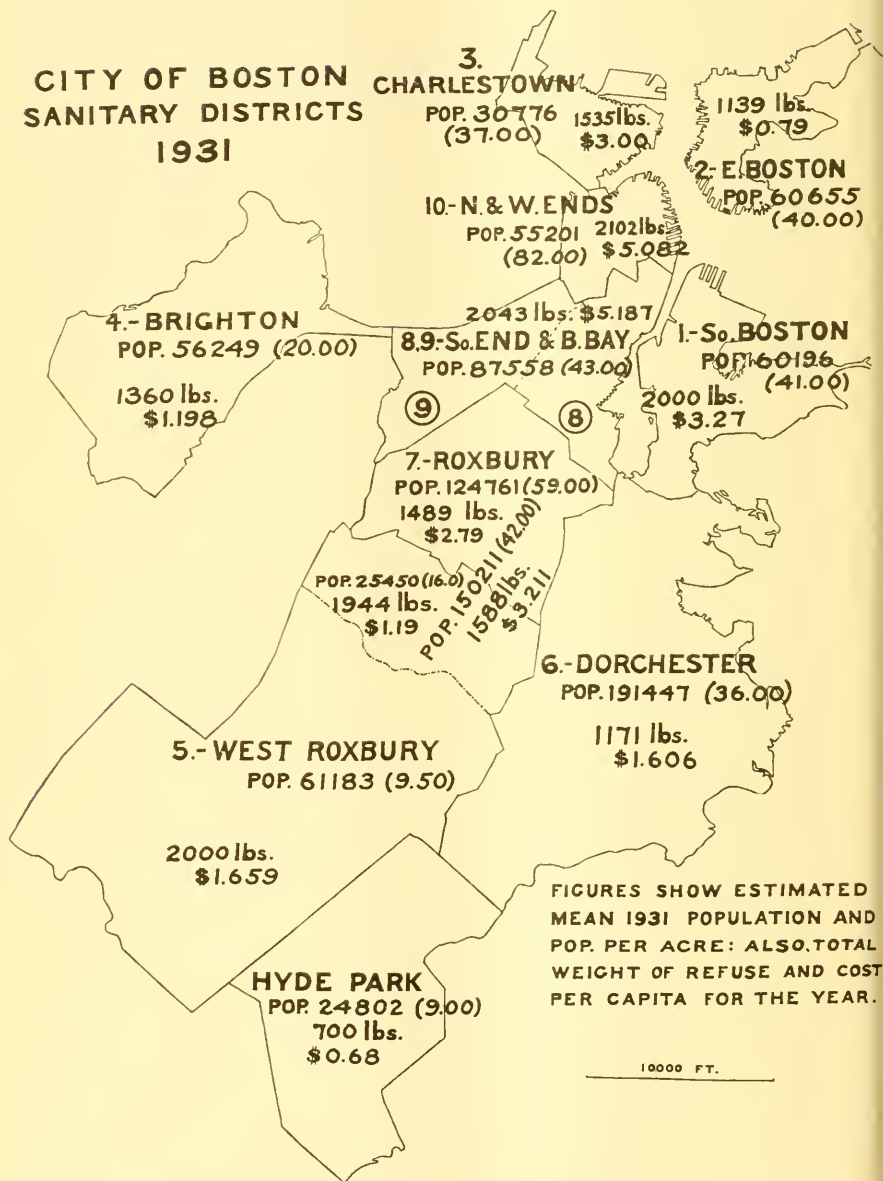
under the heading of West Roxbury. This year West Roxbury coincides exactly with District 5 and the remainder is included with District 7 (Roxbury).

STREET CLEANING AND OILING SERVICE.

DISTRIBUTION OF EXPENDITURES.

Removing snow	\$130,831 47
Flushing streets	23,321 42
Street patrolling	80,771 35
Push-cart patrolling	167,772 11
Cleaning of paved streets	249,633 81
Cleaning of macadam streets	96,341 19
Cleaning public alleys	8,558 67
Sanding of slippery streets	3,776 19
Cleaning streets by motor machines	81,785 95
Refuse box collection	31,179 59
Total	\$873,971 75
Oiling of public streets and ways	35,960 66
Watering of public streets and ways	2,250 95
Total	<u>\$912,183 36</u>

CITY OF BOSTON SANITARY DISTRICTS 1931



APPENDIX D.

REPORT OF THE DIVISION ENGINEER OF
THE SEWER DIVISION.

BOSTON, January 2, 1932.

MR. JOSEPH A. ROURKE,
Commissioner of Public Works.

DEAR SIR,—I submit herewith statement of the activities and expenditures of the Sewer Division for the year ending December 31, 1931.

There were built by contractors, day labor and private parties, 27.21 miles of sewers and surface drains throughout the city.

After deducting 1.29 miles of sewers and surface drains, rebuilt or abandoned, the net increase for 1931 is 25.92 miles, which, added to the existing 1,096.98 miles of common sewers and surface drains and 30.93 miles of intercepting sewers, makes a grand total of 1,153.83 miles of common and intercepting sewers belonging to the City of Boston and under the care of the Sewer Division on December 31, 1931.

There were 657 catch-basins built or rebuilt and 95 abandoned or removed during the year, making a net gain of 562 catch-basins, and a grand total of 20,081 catch-basins under the care of the Sewer Division on December 31, 1931; also, 8,841 catch-basins and 140 drop inlets were cleaned by contract.

Three thousand nine hundred twenty-six permits were issued for sewerage works and drain laying.

Entrance fees to the amount of \$3,735.14 were deposited with the City Collector.

Plans were furnished the Board of Street Commissioners for the assessment of estates for 58,350.73 linear feet of sewers, costing \$365,852.30.

Reports were made on 2,773 municipal liens to the City Collector and orally on 6,000 requests.

Six hundred and thirty-seven complaints were investigated.

Three hundred and fourteen gasoline traps in garages and 107 hotels and restaurants were inspected regarding grease traps.

The principal *sewerage works recommended for 1932* are as follows:

CITY PROPER.

Extension of Nashua street overflow opposite Lowell street; rebuilding of old overflow in Beaver place, the Clinton street overflow, and Salem street sewer, near Cross street; and sewerage works in Alleys 521, 541 and 544; those required for Arlington street widening, and sewerage works for relief of the Cumberland street district.

ROXBURY.

Extension of Maywoods brook conduit in Laurel, Ottawa, Sherman and Bower streets to Warren street; rebuilding sewerage works in Fellows street and Hampden street; Alley 931 across Boylston street, as an outlet for Alleys 926 and 930, and reconstruction of sewerage works to be built by the Transit Department made necessary by the building of the Boylston Street Subway extension.

EAST BOSTON.

Sewerage works in Marginal street, Everett street, Havre street and Paris street.

BRIGHTON.

Sewerage works for the improvement of the Pratt street area; Shepard brook in Everett street, resulting from twelve petitions; and extension of Parsons street overflow.

WEST ROXBURY.

Sewerage works for extension of Roslindale branch of Stony brook, between Stellman road and Firth road; Stony brook (main channel) to the confluence of Canterbury branch channel; Dent Street brook to Brook Farm road; Spring Street brook; and sewerage works to satisfy about fifty petitions.

DORCHESTER.

Sewerage works for Tenean creek, from Victory road to New York, New Haven & Hartford Railroad; Davenport brook, from Hallet-Davis street to Milton branch of Old Colony Railroad; Coleman street, from Hamilton street to Quincy street; Oakland brook from Monterey street to Messinger street, and to satisfy petitions for drainage.

HYDE PARK.

Sewerage works for Readville brook, Central avenue outlet, Hyde Park branch of Oakland brook, outlet for Mariposa street, outlet for Readville car shops area, and to satisfy fifteen petitions.

Sewerage works will be required in all districts of the city where street construction and widenings are ordered by the Street Commissioners, and for construction of new permanent pavements.

CALF PASTURE PUMPING STATION.

Remove old No. 4 pump and install a new electrically driven pump; install electrically operated control gates in main galleries, and make repairs, installations and replacements where necessity demands.

UNION PARK STREET PUMPING STATION.

Install mechanical rakes for screens and construct a large pump sump.

FEN GATE HOUSES.

Install new tide-gates and frames in the by-pass.

MOON ISLAND.

Make only necessary repairs, installation and replacements, as occasion may demand.

CLEANING OF SEWER STRUCTURES AND CATCH-BASINS.

Continue the cleaning of sewers and surface drains where imperative, and all catch-basins, so that these may function properly.

Yours respectfully,

GEORGE W. DAKIN,
Division Engineer.

Financial Statement from January 1, 1931, to December 31, 1931.

OBJECT.	Balance on Hand Jan. 1, 1931.	Appropriations, Loans and Revenue.	Transfers from	Transfers to	Total Credits.	Expenditures During the Year 1931.	Balance on Hand Dec. 31, 1931.
Sewer Service.....		\$730,428 97	* \$12,654 19		\$717,774 78	\$654,430 64	\$63,344 14
Sewerage Works.....	\$247,381 31	1,550,983 78			1,798,365 09	1,460,174 08	338,191 01
Savin Hill Bay Sewerage Works, etc.....	71,233 63	100,000 00			171,233 63	141,300 74	† 29,932 89
Centre Street Appropria- tion (Section 1).....						22,963 22	
Preble Street Appropria- tion.....						7,224 17	
Charles Street Widening...						4,043 01	
Totals.....	\$318,614 94	\$2,381,412 75	\$12,654 19		\$2,687,373 50	\$2,290,135 86	\$431,468 04

* \$12,654.19 transferred to Public Welfare Department.

† \$40,000 authorized but not issued.

Cleaning Catch-basins, 1931.— (By Contract.)

Districts.	Contractors.	Start and Finish of Work.	Price per Cubic Yard.	Cubic Yards Excavated by Contractor.	Contractor Received by Districts.	Total Catch-basins Cleaned.	Total Drop Inlets Cleaned.	Average Cubic Yards per Basin.	Total Cost of Inspection.	Average Total Cost to City per Basin, Including Drop Inlets.
1. City Proper.....	E. J. Byrne.....	{April 15, 1931} {Dec. 4, 1931}	\$1 39	9,011.20	\$12,525 57	2,603	38	3.30	\$1,248 37	\$5 22
2. Roxbury North.....	D. W. Norton.....	{April 14, 1931} {Aug. 29, 1931}	1 44	4,097.27	5,900 07	1,227	18	3.30	736 86	5 33
2A. Roxbury South.....	Massachusetts Contracting Company.....	{April 13, 1931} {Sept. 1, 1931}	1 70	3,486.29	5,926 70	968	4	3.55	690 48	6 81
3. South Boston.....	Massachusetts Contracting Company.....	{April 13, 1931} {Sept. 1, 1931}	1 68	3,297.25	5,539 38	1,006	17	3.30	709 48	6 11
4. Charlestown and East Boston.....	W. G. C. Company.....	{April 6, 1931} {July 22, 1931}	1 75	3,152.03	5,516 06	959	10	3.40	576 78	6 29
5. Dorchester and Hyde Park.....	A. A. R. Doyle.....	{May 2, 1931} {Dec. 31, 1931}	1 60	5,950.98	9,521 57	1,932	49	3.10	1,189 16	5 41
Totals.....				28,995.02	\$44,929 35	8,695	136		\$5,151 13	

Total catch-basins cleaned..... 8,695 Total cost: Contractors..... \$44,929 35
Total drop inlets cleaned..... 136 Inspection..... 5,151 13
Advising..... 9 75

\$50,090 23

Total cubic yards material removed, 28,995.02. Average cubic yards material removed per basin, 3.32.
Average cost per basin, including drop inlets, \$5.85. Average cost per cubic yard removed, \$1.68.

Sewerage Works.

Expenditures, January 1, 1931, to December 31, 1931.

ACCOUNTS.	Labor.	Autos.	Materials.	Miscellaneous.	Contractors.	Totals.	Net Totals.
Engineers' salaries.....	\$133,794 16					\$133,794 16	
Engineers' expense.....	8,433 89	\$122 33	\$5,834 52	\$4,677 03	\$4,121 26	23,189 03	
Sundries.....	1,798 31	72 56	160 85	133 85	720 44	2,886 01	
Stock.....			63,623 64			63,623 64	
Land takings.....				4,847 37		4,847 37	
Calf Pasture Pumping Station, bar screens, No. 3 pump.....	7 40				1,449 00	1,456 40	
Calf Pasture Pumping Station, removing parts, No. 3 pump.....					925 65	925 65	
Calf Pasture Pumping Station, new motor-driven pump.....	1,838 18			699 91	26,949 00	29,487 09	
Calf Pasture Pumping Station, cleaning No. 3 pump well.....					259 05	259 05	
Release sewers.....	317 50				34 30	351 80	
Repair streets.....			14 78		2,005 59	2,020 37	
New manholes, entire city.....	14,448 71	2,723 46	6,073 56	257 17	5,300 77	28,803 67	
New catch-basins, South Boston.....	6,554 60	1,251 57	2,238 40	24 00	2,149 24	12,217 81	
New catch-basins, East Boston.....		6 50	73 10		112 96	192 56	
New catch-basins, Charlestown.....			37 25		368 60	405 85	
New catch-basins, Brighton.....	2,436 09	255 08	961 12		517 59	4,169 88	

New catch-basins, West Roxbury.....	3,592 94	603 75	1,804 96		1,705 84	7,707 49
New catch-basins, Dorchester.....	11,337 52	2,229 26	4,274 26	1,309 62	8,983 75	28,134 41
New catch-basins, Hyde Park.....	1,337 75	168 94	1,045 68		1,659 64	4,212 01
New catch-basins, Roxbury.....	7,706 45	1,121 02	3,412 99	71 00	5,962 75	18,274 21
New catch-basins, city proper.....	7,249 82	1,553 29	3,497 84	46 50	7,448 25	19,795 70
Holiday,.....	1,875 27					1,875 27
Transfers, stock and autos.....	\$202,728 59	\$10,107 76	\$93,052 95	\$12,066 45	\$70,673 68	\$388,629 43
		9,036 90	58,755 53			67,792 43
	\$202,728 59	\$1,070 86	\$34,297 42	\$12,066 45	\$70,673 68	\$320,837 00
Sewers built, entire city.....	\$102,833 35	\$821 28	\$40,185 47	\$71,749 49	\$924,568 77	\$1,140,158 36
Transfers, stock and autos.....		821 28				821 28
	\$102,833 35		\$40,185 47	\$71,749 49	\$924,568 77	\$1,139,337 08
						\$1,460,174 08

Recapitulation.

DISTRICT.	Linear Feet Sewers.	Linear Feet Catch-basin Drains.	Manholes.	Catch-basins.	Amount Expended in 1931.
South Boston.....	5,116.22		21	19	\$58,598 20
East Boston.....	1,617.10	114	12	9	7,400 55
Charlestown.....	236.00				2,463 52
Brighton.....	18,249.57	994	140	71	92,191 11
West Roxbury.....	55,662.17	2,617	236	188	439,213 99
Dorchester.....	35,551.89	2,083	235	128	274,360 69
Hyde Park.....	12,160.30	248	20	19	89,404 70
Roxbury.....	11,440.20		77	32	132,168 66
City Proper.....	3,612.26	1,120	7	36	44,356 94

**New Catch-basins and Manholes Built by Day Labor and Contract
January 1, 1931, to December 31, 1931, Inclusive.**

DISTRICTS.	Catch-basins.	Manholes.	Total Cost.
South Boston.....	28	19	\$17,710 35
East Boston.....	9		238 01
Charlestown.....	1	2	958 33
Brighton.....	58	13	5,451 57
West Roxbury.....	31	4	8,383 32
Dorchester.....	51	30	35,815 27
Hyde Park.....	11	4	4,276 57
Roxbury.....	41	49	24,261 32
City Proper.....	27	35	26,818 85
Totals.....	257	156	\$123,913 59

Engineers' salaries, general \$133,794 16
Amount charged to construction of sewers 102,833 35

\$236,627 51

SEWER DIVISION.

Summary of Sewer Construction for Twelve Months Ended
December 31, 1931.

DISTRICTS.	Built by City by Contract or Day Labor.	Built by Private Parties.	Total Length Built.	
			Linear Feet.	Miles.
City Proper.....	2,991.76	620.50	3,612.26	0.684
Roxbury.....	7,272.20	4,168.00	11,440.20	2.167
South Boston.....	5,116.22		5,116.22	0.969
East Boston.....	1,617.10		1,617.10	0.306
Charlestown.....	236.00		236.00	0.045
Brighton.....	18,249.57		18,249.57	3.456
West Roxbury.....	54,776.52	885.65	55,662.17	10.542
Dorchester.....	35,363.99	187.90	35,551.89	6.733
Hyde Park.....	12,160.30		12,160.30	2.303
Totals.....	137,783.66	5,862.05	143,645.71	27.205

Table of Approximate Quantities, Lifts and Duties at Calf Pasture Pumping Station, from January 1, 1931, to December 31, 1931, Inclusive.*

MONTH.	Total Gallons Pumped.	Average per Day Gallons.	Minimum per Day Gallons.	Maximum per Day Gallons.	Average Lift, Feet.	AVERAGE DAILY DUTY IN MILLION FOOT-POUNDS.	
						Per Gallon Oil.	Per Kilowatt Hour.
January.....	3,950,830,780	127,446,155	94,270,237	160,875,003	35.4	7.0	2.010
February.....	3,602,316,468	128,654,160	95,050,628	190,261,799	35.4	7.1	2.005
March.....	3,973,814,252	128,187,557	88,912,970	166,575,752	35.4	7.3	2.246
April.....	3,411,362,272	113,712,073	87,643,408	137,784,285	35.4	7.1	1.737
May.....	3,622,098,557	116,841,889	91,518,517	148,590,406	35.4	7.3	1.732
June.....	3,853,850,706	128,461,690	103,187,599	190,732,479	35.4	7.7	2.113
July.....	3,499,716,201	112,894,071	99,122,828	133,268,402	35.4	7.7	1.829
August.....	3,927,215,021	126,684,356	84,065,000	176,450,890	35.4	7.3	2.196
September.....	3,116,873,770	103,895,626	94,790,842	166,510,396	35.4	7.1	1.386
October.....	2,540,010,607	81,935,826	63,907,171	103,244,902	35.4	6.1	1.843
November.....	2,417,103,733	80,570,124	71,011,123	112,141,566	35.4	6.2	1.437
December.....	2,941,151,570	94,875,857	75,852,211	133,190,957	39.7	7.0	2.351
Total.....	40,856,343,937	112,013,282				7.075	1.907
Daily averages.....							

NOTES.— 23,499,770,329 gallons pumped by oil; 968,044 gallons of oil used.
 17,356,573,608 gallons pumped by electric power; 2,887,470 K. W. hours used for pumping and auxiliaries.
 * Figures are based on plunger displacement and on pump ratings, no allowance for slip.

Cost of Pumping at Calf Pasture Pumping Station, January 1,
1931, to December 31, 1931, Inclusive.

ITEMS.	Cost.	Cost per Million Foot Gallons.
Labor.....	\$84,262 36	\$0.05761
Fuel oil, 968,044 gallons *.....	30,544 19	.02088
Electric power, Edison, 2,887,470 K. W. hours *.....	39,135 98	.02675
Oils and waste.....	2,225 21	.00158
Rubber valves and packing.....	1,446 22	.00099
Miscellaneous renewals and supplies.....	6,264 11	.00428
Cleaning wells	10,725 00	.00733
Totals.....	\$174,603 07	\$0.11942
Labor at screens.....	8,659 68	.00592
Grand totals.....	\$183,262 75	\$0.12534

*This includes all power for auxiliaries and lighting.

APPENDIX F.

REPORT OF THE DIVISION ENGINEER OF THE
WATER DIVISION.

BOSTON, January 2, 1932.

To the Commissioner of Public Works:

The following report of the operation, income and expenditures of the Water Division for the year ending December 31, 1931, is respectfully submitted:

During the year, 7.5 miles of pipe, varying in size from 8-inch to 16-inch, was laid for extension, and is an increase over the length laid in 1930 of 4.2 miles. In districts the pipe lengths were:

City proper		.2 miles
South Boston		.7 miles
Dorchester		2.1 miles
West Roxbury		3.8 miles
Brighton		.7 miles

Preliminary to the permanent pavement of Northern avenue, 2,700 linear feet of 16-inch pipe was laid between the Commonwealth Pier and Sleeper street, to reinforce the High Service system in the South Boston district.

Continuing the policy of replacing the older and smaller mains with larger sizes for the improvement of the fire protection in the more densely populated section of the city, 14,585 linear feet or 2.8 miles of 4-inch and 6-inch mains, laid fifty years or more, were replaced with 8-inch and 12-inch pipe. Some of the longer lengths were:

CITY PROPER.

Parkman street, between North Anderson and North Russell streets, 451 linear feet of 6-inch relaid with 8-inch pipe.

Braddock park, between Columbus avenue and the

New York, New Haven & Hartford Railroad, 459 linear feet of 6-inch relaid with 8-inch pipe.

Creek square, between Blackstone and Marshall streets, 350 linear feet 4-inch and 6-inch with 6-inch pipe.

ROXBURY.

Clifton street, between Rockford and Dudley streets, 1,900 linear feet 6-inch relaid with 12-inch pipe.

Regent street, between Warren and Dale streets, 1,920 linear feet 6-inch relaid with 12-inch pipe.

DORCHESTER.

Westglow street, between Train and Frost streets, 669 linear feet 6-inch relaid with 12-inch pipe.

Olney street, between Bowdoin and Richfield streets, 468 linear feet 6-inch relaid with 12-inch pipe.

Wilrose street, between Westwood street and Puritan avenue, 491 linear feet 6-inch relaid with 10-inch pipe.

Frederika street, between Minot street and Gallivan Boulevard, 475 linear feet 6-inch relaid with 8-inch pipe.

Chipman street, between Torrey and Norfolk streets, 629 linear feet 6-inch relaid with 8-inch pipe.

Moody street, between Torrey street and Dunbar avenue, 360 linear feet 6-inch relaid with 8-inch pipe.

Oakwood street, between Torrey and Norfolk streets, 652 linear feet 6-inch relaid with 12-inch pipe.

Wentworth street, between Torrey and Norfolk streets, 362 linear feet 6-inch relaid with 8-inch pipe.

Washington street, between Torrey and Norfolk streets, 668 linear feet 6-inch relaid with 8-inch pipe.

SOUTH BOSTON.

West Third street, between B and Dorchester streets, 2,925 linear feet 6-inch relaid with 12-inch pipe.

Preble street, between Dorchester and Old Colony avenues, 1,683 linear feet 6-inch relaid with 12-inch pipe.

EAST BOSTON.

Webster street, between Orleans and Cottage streets, 675 linear feet 6-inch relaid with 10-inch pipe.

Applications for service pipes show a decrease in the building operations — total number of applications received for the year 1,009, as against 1,078 in 1930.

Of the total number of services installed, 824 were

$\frac{5}{8}$ -inch, 139 were from 1 inch to 6 inches in size, and 46 were for fire pipes to furnish sprinkler protection.

The regular work of the Distribution Branch, consisting of leak repairs, installation of service pipes, caring for complaints, shutting off and letting on of water, etc., was performed in such manner and at such periods as to cause a minimum of delay and inconvenience to applicants for water, water takers and the general public. Practically all activities in the business district are now done on Sundays and holidays.

Complying with the Legislative Act of 1907, relative to metering water service pipes, there was set on old services in existence previous to 1907, 57 meters, and on new pipes, 849 meters, making a total of 905 meters set during the year. The 57 old service pipes developed during the year on a survey of all premises, despite the assumption that all existing service pipes had been metered at the end of 1929. Total number of meters in the system at the end of the year was 100,508. In addition to the installation of meters on service pipes, 7,847 meters were changed and reset after overhauling in the meter shop, and 3,096 meters were repaired in service. The tampering with meters in various sections of the City grew so numerous that steps were taken to seal all new meters installed in addition to a systematic sealing of existing meters.

Collections from all purposes in the Water Division were \$4,870,939.16.

Respectfully submitted,

C. J. CARVEN,
Division Engineer.

Financial Transactions.

	1931.	
Revenues:		
Receipts for water.....	\$4,769,011 83	
All other receipts.....	101,927 33	
Balance from previous year.....	514,999 00	\$5,385,938 16
Expenditures from Revenue:		
Current expenses and extensions.....	\$1,679,667 56	
Metropolitan water assessment.....	2,819,696 61	
Refunded water rates.....	824 45	
Transferred to credit of Collecting Department.....	80,460 13	
Transferred to appropriation for extension of water mains....	34,654 65	
Transferred to appropriation for High Pressure Fire Service, extension of.....	275,000 00	4,890,303 40
		\$495,634 76
Expenditures on Debt Account:		
Interest on water debt.....	\$20,165 00	
Payment on Hyde Park water debt.....	16,000 00	
Payments on serial loans.....	34,000 00	70,165 00
Balance year's operations, other than proceeds of loans.....		\$425,469 76
Loan Account:		
Debt outstanding first of year.....		\$538,000 00
Loans paid during year.....		50,000 00
Debt end of year (all serial bonds).....		\$488,000 00
Construction Account:		
Balance first of year, extension of water mains.....	*\$37,335 00	
Appropriation, High Pressure Fire Service, extension of.....	275,000 00	\$312,335 00
Expended from appropriation, extension of water mains.....	\$37,335 00	
Expended from appropriation, High Pressure Fire Service, extension of.....	227,992 10	265,327 10
Balance unexpended, end of year.....		\$47,007 90
Total New Construction:		
From revenue, extension of mains.....	\$281,414 27	
From revenue, extension of water mains.....	34,654 65	
From revenue, High Pressure Fire Service, extension of.....	227,992 10	
From loans, extension of water mains.....	7,458 83	\$551,519 85

* \$34,654.65 transferred to this appropriation from income.

Financial Transactions.— Concluded.

	1931.	
Cost of construction end of year.....	\$24,733,749 65	
Cost of construction first of year.....	24,182,229 80	
Increase in plant cost during year.....		<u>\$551,519 85</u>
Cost of Construction and Condition of Water Debt:		
Cost of construction December 31, 1931.....	\$22,443,601 63	
Cost of construction December 31, 1930.....	22,120,073 88	
Increase during the year.....		<u>\$323,527 75</u>
Outstanding loans December 31, 1930.....	\$538,000 00	
Outstanding loans December 31, 1931.....	488,000 00	
Decrease during the year.....		<u>\$50,000 00</u>
Cost of Existing Works December 31, 1931:		
Pipe yards and buildings.....	\$94,832 16	
Engineering expenses.....	57,873 58	
Distribution system (addition during the year \$323,527.75) *..	21,822,895 89	
Hyde Park Water Works.....	468,000 00	
		<u>\$22,443,601 63</u>
High Pressure Fire Service (additions during the year \$227,992.10).....		<u>\$2,290,148 02</u>

* Includes \$90,244.78 expended for High Pressure Fire Service in the years 1925, 1926 and 1931.

INCOME BRANCH.

Statement of Each Year's Water Rates, 1912 to 1931, as of December 31, 1931.

YEAR.	Assessments.	Abatements.	Collections.	Outstanding.
1912.....	\$3,001,771 87	\$58,369 39	\$2,943,402 48	
1913.....	3,004,331 52	50,147 90	2,954,183 62	
1914.....	3,034,885 83	64,653 01	2,970,232 82	
1915.....	2,960,797 45	57,782 09	2,903,015 36	
1916.....	3,130,590 53	67,771 69	3,062,818 84	
1917.....	3,120,878 86	77,353 75	3,043,525 11	
1918.....	3,359,714 95	162,415 52	3,197,299 43	
1919.....	3,210,147 91	95,812 76	3,114,335 15	
1920.....	3,503,677 88	123,509 90	3,380,167 98	
1921.....	3,615,663 51	90,946 23	3,524,717 28	
1922.....	3,612,715 51	90,453 27	3,522,262 24	
1923.....	3,817,642 72	77,449 02	3,740,193 70	
1924.....	3,832,531 26	43,663 01	3,783,288 62	\$5,579 63
1925.....	3,875,434 21	39,033 02	3,828,918 17	7,483 02
1926.....	3,910,119 54	44,332 09	3,857,721 63	8,065 82
1927.....	3,979,098 85	42,680 65	3,911,922 68	24,495 52
1928.....	4,418,027 32	36,843 98	4,366,031 46	15,151 88
1929.....	5,016,804 74	40,269 10	4,926,834 09	49,701 55
1930.....	4,863,621 13	26,573 99	4,649,674 51	187,372 63
1931.....	4,744,335 69	14,601 25	3,173,903 22	1,555,831 22

METER BRANCH.

Table No. 1. Statement of Work During Year 1931.

MAKE.	New Sets.	Discontinued.	CHANGES.		Tested.	Repaired in Shop.	Repaired in Service.	Resets.
			Out.	In.				
Hersey disc.....	580	344	3,676	5,096	9,352	4,460	573	177
Worthington disc.....	68	60	989	779	1,836	850	94	22
Watch dog.....	209	205	1,384	1,507	3,296	1,747	255	56
King.....		54	1,438	18	1,510	1	223	
Hersey detector.....	3	2					188	
Hersey rotary.....	1	5	20	12	38	4	87	1
Crown.....		3	73	2	78	1	22	
Federal.....		1	42	3	46	1	13	
American.....	8	5	134	182	329	180	51	6
Lambert.....	5	3	16	54	78	90	5	6
Nash.....	26	6	47	178	257	258	20	5
Keystone.....			10		10	1		
Trident.....	5	3	18	16	42	19	2	
Hersey compound.....		1			1	1	15	
Totals.....	905	692	7,847	7,847	16,873	7,613	3,096	273

Table No. 2.

Meters in Service December 31, 1931.

MAKE.	DIAMETER IN INCHES.											Totals.
	$\frac{5}{8}$	$\frac{3}{4}$	1	1½	2	3	4	6	8	10	12	
Hersey detector.....						3	40	56	34	23	5	161
Hersey disc.....	46,375	3,161	1,588	836	368	148	101	16				52,593
Hersey rotary.....	344	270	152	127	143	52	22	15				1,125
Trident.....	159	4	6	2	12	7	12	2	2	2		208
Crown.....	263	356	95	94	109	36	29	8				990
Worth disc.....	8,457	18	29	24	62	5	1					8,596
Watch dog.....	22,980	967	1,047	712	428	241	70					26,445
King.....	6,180	279	2	21	25							6,507
Federal.....	967											967
American.....	981	418										1,399
Lambert.....	279	106	65	4	15		4					473
Nash.....	259	279	45	20								603
Keystone.....	168	158						2				328
Empire.....	91											91
Hersey compound.....						1	8	13				22
Totals.....	87,503	6,016	3,029	1,840	1,162	493	287	112	36	25	5	100,508

DISTRIBUTION BRANCH.

Table No. I.

Showing Length of Water Pipes and Connections Owned and Operated by the Public Works Department, Water Division (Water Service), and Number of Valves in Same, December 31, 1931.

DIAMETER OF PIPES IN INCHES.																	
	43.	42.	40.	36.	30.	24.	20.	16.	14.	12.	10.	8.	6.	4.	3.	2.	Totals.
Length owned and operated December 31, 1930.....	20,600	15,980	16,081	43,780	90,543	84,641	86,582	298,395	5,041	1,671,299	447,533	1,055,000	1,091,506	79,573	10,023	6,509	5,023,086
Gate valves in same.....	17	4	9	20	56	80	73	697	18	4,562	1,525	3,741	3,501	564	16	16	14,899
Air valves in same.....	35	5	9	34	109	79	42	83		52	1	3			1		453
Blow-offs in same.....	5	4	3	11	33	30	47	70		163	41	154	138	63	11	2	775
Length laid and relaid during 1931.....	2,871			50	99½	504	176	6,830		24,064	2,753	27,732	1,157	187	301		66,724½
Gate valves in same.....	6					2		20		119	13	152	17	1			330
Air valves in same.....	3					2		7									13
Blow-offs in same.....	1					3		4		3	1	9	5		1		30
Length abandoned during 1931.....	1,816		729			494	176	758	75	4,670	149	2,204	16,612	368			28,051
Gate valves in same.....	3					2		6		25	2	11	68	5			122
Air valves in same.....																	
Blow-offs in same.....	3							1		2			1				8
Length owned and operated December 31, 1931.....	21,655	15,980	15,352	43,830	90,642½	84,651	86,582	304,467	4,966	1,690,693	450,137	1,080,528	1,076,051	79,392	10,324	6,509	5,061,759½
Gate valves in same.....	20	4	9	20	56	80	73	711	18	4,656	1,536	3,882	3,450	560	16	16	15,107
Air valves in same.....	38	5	10	34	109	81	42	90		52	1	3			1		466
Blow-offs in same.....	3	4	6	11	33	33	47	73		164	42	162	142	63	12	2	797

958.66 miles in system.

Table No. 2.

Total Number of Hydrants in System December 31, 1931.

	Lowry.	Boston Lowry.	Boston Post.	Ordinary Post.	Hatchelder and Fineran Post.	Ludlow Post.	Chapman Post.	Coffin Post.	Matthews Post.	Boston.	Totals.
Brighton (public)	11	32	259	456	278					10	1,046
" (private)				8						2	10
Charlestown (public)	61	17	130	56	83					2	349
" (private)	13	1		37						5	56
City proper (public)	430	29	422	224	364					51	1,520
" (private)	5		9	1	2					37	54
Dorchester (public)	104	89	635	1,051	656					14	2,549
" (private)	1	1	9		2					4	17
East Boston (public)	13	11	176	213	118					5	536
" (private)	8	1		9						25	43
Hyde Park (public)				284	254	4	77	1			620
" (private)						13	55		4		72
Roxbury (public)	124	40	347	288	731					11	1,541
" (private)	2	1	3	4						9	19
South Boston (public)	58	16	212	174	184					14	658
" (private)	4	1		15						27	47
West Roxbury (public)	9	133	437	972	627					13	2,191
" (private)				15	1					1	17
Deer Island (private)			1	19							20
Gallnp's Island (private)				3						1	4
Long Island (private)				6							6
Rainsford Island (private)				3							3
Thompson's Island (private)				2							2
Quincy				9							9
Total number (public)	810	367	2,618	3,718	3,295	4	77	1		120	11,010
Total number (private and suburban)	33	5	22	131	5	13	55		4	111	379

WATERWORKS STATISTICS — CITY OF BOSTON.

FOR THE FISCAL YEAR ENDING DECEMBER 31, 1931.
DISTRIBUTION.*Mains.*

Kind of pipe: Cast iron, wrought iron.
Size: 2-inch to 48-inch.
Extended, miles, 7.32.
Size enlarged, miles, 3.38.
Total miles now in use, 958.66.
Public hydrants added, 100.
Public hydrants now in use, 11,010.
Stop gates added, 208.
Stop gates now in use, 15,075.
Stop gates smaller than 4-inch, 32.
Number of blow-offs, 797.
Range of pressure on mains, 30 to 90 pounds.

Service.

Kind of pipe and size: Lead and lead lined, $\frac{1}{2}$ -inch to 2-inch; cast iron
2-inch to 16-inch; wrought iron and cement lined, $\frac{3}{4}$ -inch to 2-inch;
brass and copper, $\frac{5}{8}$ -inch to 2 $\frac{1}{2}$ -inch.
Service taps added, 1,009.
Total service taps now in use as per metered service, 100,508.

APPENDIX F.

REPORT OF THE BOSTON AND CAMBRIDGE
BRIDGE COMMISSION.

BOSTON, January 2, 1932.

To the Honorable the Mayor.

SIR,—As Commissioner for the City of Boston, I respectfully submit herewith the annual report of the Boston and Cambridge Bridge Commission for the year ending December 31, 1931.

The commission is composed of two members, one appointed by the Mayor of the City of Boston and the other by the Mayor of the City of Cambridge, under provisions of chapter 467, Acts of 1898.

The commission has charge of the maintenance of the following-named bridges between Boston and Cambridge:

Cottage Farm, Longfellow and Prison Point.

The commission maintained the following bridges up to July 9, 1931; on which date they were taken over by the Metropolitan District Commission, under chapter 423, Acts of 1931:

Anderson, River Street—Cambridge Street and Western Avenue.

As there is no separate appropriation made for the City of Boston's portion of the expenses of this commission, the same is taken from the appropriation for the Bridge and Ferry Division, Bridge Service. The amount expended during the fiscal year ending December 31, 1931, was \$10,238.78.

BRIDGES, REPAIRS, ETC.

LONGFELLOW BRIDGE.

A contract was awarded to Quinn Brothers, approved November 4, 1930, for furnishing and installing cables and lights on this bridge. The work was completed

June 1, 1931, and three payments were made to the contractor, amounting to \$2,605.63. There is still due the contractor the sum of \$459.82. The sum of \$4.88 was expended under this contract in 1930 for advertising.

Respectfully submitted,

J. A. ROURKE,
Commissioner for the City of Boston.

Boston and Cambridge Bridges. Expenditures for the Year Ending December 31, 1931.
Being the Portion Paid by the City of Boston, which is One Half of the Total Expenditure.

	Administration.	Anderson Bridge.	Cottage Farm Bridge.	Longfellow Bridge.	Prison Point Bridge.	River Street Bridge.	Western Avenue Bridge.	Totals.
Salaries.....	\$300 00	\$442 43	\$782 50	\$3,427 17	\$77 60	\$197 50	\$210 00	\$5,437 20
Inspection.....		28 00	100 00	192 00	228 00	28 00	28 00	604 00
Repairs.....		422 00	17 66	478 82				918 48
Light.....		172 09	1,056 19	1,681 69		124 16	134 55	3,168 68
Supplies.....			17 82	45 17				62 99
Printing and stationery.....	30 43							30 43
Rent.....				17 00				17 00
Totals.....	\$330 43	\$1,064 52	\$1,974 17	\$5,841 85	\$305 60	\$349 66	\$372 55	\$10,238 78

BOSTON PUBLIC LIBRARY



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